Anatomy [1209207]

Offerta didattica a.a. 2026/2027

Docenti: GIORGIO VIVACQUA

Periodo: Ciclo Annuale Unico

Obiettivi formativi
The course is articulated in two terms. The first dedicated to the study of Neuroanatomy and Sensory Organs, the second to systematic topographical, microscopic and radiological anatomy of organs and systems.

First term educational aims:
Building upon foundational knowledge in Chemistry, Biology, and Physics, as well as on the bases of topographical anatomy, histology, and embryology, the student must acquire an in-depth understanding of the organization of the nervous system and sensory organs from both morphological and functional perspectives.
Furthermore, the student must be familiar with the anatomical taxonomy and spatial relationships of the various structures within the central and peripheral nervous systems, the anatomo-functional organization of the principal motor and sensory systems, and the anatomical circuits involved in the regulation of homeostasis, emotional perception, and learning.
Drawing on an understanding of neural development, students must comprehend the primary functions of nervous centers and their interactions, including the implications of potential dysfunctions.
Finally, they must be able to interpret and analyze radiological images of the central nervous system and resolve clinical cases based on their neuroanatomical knowledge.

Second term educational aims:
Building upon the fundamentals of histology and embryology, and on the bases of topographic anatomy, neuroanatomy and radiological anatomy, the student should acquire an integrated anatomo-functional view of the human body. This perspective begins with embryological development and encompasses:
- the topographic organization of the body cavities (thorax, abdomen, pelvis);
- a systematic understanding of the various body systems and their integrated anatomical functions;
- knowledge of the vascularization and innervation of the various organs, along with their respective functional correlates;
- knowledge of microscopic and ultrastructural anatomy as a basis for understanding organ function;
- knowledge of the normal radiological anatomy of the various body cavities and organs.

Prerequisiti
To be eligible to the Anatomy II exam, students must have passed the following exams:
• Structure and Basic Functioning
• Anatomy I
• Biology
• Chemistry
• General Physics

Contenuti del corso
Neuroanatomy and sensory organs:

Development of the central nervous system. Overview of the nervous system: general organization, meninges, cerebrospinal fluid circulation, venous and arterial vascularization. Spinal cord. Brainstem and cerebellum. Reticular formation. Diencephalon. Telencephalon. Cellular and molecular organization of the cerebral cortex. Motor pathways. Basal ganglia and cerebellar pathways. Sensory and pain-temperature pathways. Special sensory pathways: visual, auditory, vestibular, olfactory, and gustatory pathways. Limbic system: memory and emotional circuits. Circumventricular organs. Neurochemical anatomy of the main neurotransmitter systems. Elements of comparative anatomy and neural networks.
Sensory organs and esthesiology: the eye, ocular adnexa, and lacrimal glands. Ocular muscles. The retina: cytology and functional anatomy. The ear: external, middle, and inner ear; the cochlea and the organ of Corti: histology and functional anatomy; the vestibular organ. Gustatory and olfactory receptors. Cutaneous sensory receptors.
Peripheral nervous system: cranial nerves. Nerve plexuses: cervical, brachial, lumbar, and sacral. Functional distribution of the main peripheral nerves of the upper and lower limbs.
Development of the sensory organs and the peripheral nervous system. Elements of comparative anatomy of sensory systems.

Topographic anatomy of the head and neck.

Splancnology and Cardiovascular Anatomy:
- Cardiovascular System: the hearth and the pericardium: topography, gross anatomy and superficial anatomy. Radiologic anatomy of the hearth; the coronary system; the myocardial tissue. Development of the hearth and anatomical basis of cardiac malformations. The arteries and the veins: general organization of the arteries and veins systems, angiograms and radiological anatomy of the vascular system; microscopic structures of arteries, veins and capillaries.
- Respiratory System: the nasal cavities; the larynx and the anatomy of phonation; the trachea and the lower airways; the lungs and the pleura. Pulmonary circulation. The diaphragm and the respiratory mechanics. Radiological anatomy of the lungs and the thoracic cavity. The microscopic structure of the airways: respiratory epithelium, organization of the alveoli and of the blood/air barrier. Development of the respiratory system.
- Lymphatic system: overview of the lymphatic pathways. Topography and microscopic structure of the thyme, the spleen and the lymph nodes. Emocatheresys. Thymic selection and anatomical bases of dysimmune syndromes.
- Digestive system: The oral cavity, the pharynx and the salivary glands: position, clinical anatomy and histology; mechanism of swallowing. The alimentary tract (oesophagus, stomach, small and largne intestine): organization, topography, blood supply. Microscopic organization of the alimentary tract. The mucose associated lymphoid tissue (MALT). The Liver and the biliary pathways: topography, gross anatomy and microscopic organization. The portal system and its anastomosis. The pancreas: topography and microscopic organization. Endocryne function of the Pancreas. The peritoneum. Radiological and clinical anatomy of the abdominal cavity. The development of the digestive system and the peritoneal cavity.
- Urinary system: The kidney: topography, gross anatomy, radiological anatomy. Blood supply. The structure of the glomerulus. The ureter: topography, ureteral points, microscopic structure: Urinary bladder: position, gross anatomy and microscopic structure: detrusor muscle, transitional epithelium. Radiological anatomy of the excretive pathways. Micturition.
- Endocrine system: the hypophysis and the hypothalamus. Thyroid and parathyroid. Suprarenal glands and stress response. Pineal gland. Endocrine pancreas. Blood supply to the principal endocrine glands.
- Male and female reproductive system: the gonads: position, topography and histology. Blood supply. Oogenesis and spermatogenesis. The scrotal cavity. The Uterus and the falloppian tubes: position, topography and histology. The uterin cycle. Development of the reproductive system. External genitalia.

Metodi didattici
The aims of the course will be achieved by a combined approach between traditional inductive teaching method, problem based learning and interactive learning.
Sessions will be held featuring anatomical models and real anatomical specimens; guided microscopy and histological slide analysis sessions; radiological anatomy sessions; and, finally, workshops dedicated to anatomo-clinical correlations or the discussion of clinical cases based on anatomical knowledge.

Modalità di verifica dell'apprendimento
Neuroanatomy and Sensory Organs:
The assessment will take place at the end of the first term; passing it is a prerequisite for admission to the final exam of the second term. The assessment will consist of an oral exam covering the central nervous system, cranial and spinal nerves, and sensory organs, followed by a practical test involving the resolution of a clinical case based on neuroanatomy. The exams will evaluate the students' ability to analyze and describe anatomical specimens and microscopic preparations, as well as their capacity to produce work regarding innovative aspects of neuroanatomy research and its clinical application.

The final neuroanatomy grade will be determined by the score obtained in the oral exam plus a maximum of 3 additional points from the practical test. The exam is considered passed with a minimum score of 18/30. The practical test will receive a non-numerical evaluation based on three levels of assessment: Sufficient, Good, and Excellent. The oral exam will receive a numerical grade ranging from a minimum of 18/30 to a maximum of 30/30.

Splanchnology and Final Exam
At the end of the second semester, the student must take a final exam structured as follows:
- A practical microscopy test requiring the student to recognize, describe, and comment on a histological specimen related to the organs and systems studied during the course.
- A practical radiological anatomy test requiring the student to describe a radiological image using both topographical and systematic criteria.
Upon completion and successful passing of the two practical tests, the student must take an oral exam consisting of 4 questions on topics from the anatomy syllabus covered in the second semester.
The final grade will be determined by the score obtained in the oral exam combined with the results of the two practical tests. The exam is considered passed with a minimum score of 18/30. Practical tests will be assessed qualitatively, using three levels of evaluation: Sufficient, Good, and Excellent. The oral exam will be assessed numerically, with a minimum score of 18/30 and a maximum score of 30/30.

The final course grade will be the average of the grades obtained in "Neuroanatomy and Sensory Organs" and "Splanchnology." Students achieving a score of 29/30 or 30/30 will be given the opportunity to answer an additional question covering the entire syllabus of Anatomy I, Neuroanatomy,

and Splanchnology in order to obtain *cum laude* (honors).

Testi di riferimento

After the lessons covering a section of the program, students will be provided with the related didactic materials.

Principal Text books
- Anastasi et al. Treatise of Human Anatomy, Topographic Approach and Atlas. 1st Edition, EdiErmes.
- Lippincott Williams & Wilkins - Barbara Young et al. Weather: Histology and Microscopic Anatomy. 6th edition. Elsevier.
- David L. Felten et al. Netter's Atlas of Neuroscience. 3rd edition. Elsevier.

Other books
- Susan Standring et al. Grey's Anatomy: The Anatomical Basis of Clinical Practice. 41st Edition. Elsevier;
- Hal Blumenfield. Neuroanatomy trough Clinical Cases. 2nd Edition. Oxford University Press.

Other Anatomy Atlas
- Friedrich Paulsen et al. Sobotta Atlas of Human Anatomy. 15th edition. Urban & Fisher (Elsevier);
- Frank H. Netter. Atlas of Human Anatomy. 7th edition. Elsevier.

Embryology and Development
- Keith Moore and T.V.N Persaud et al. The Developing Human. Clinically oriented Embryology. 11th revisited edition. Elsevier.

Interactive Softwares
- Complete Anatomy (Elsevier)
- Sectra Educational Portal

Risultati di apprendimento specifici

Neuroanatomy and Sensory Organs
• identify, map, and name nervous structures and pathways;
• understand the functional, embryological, and phylogenetic principles governing the organization of the nervous system;
• distinguish between various methods and technologies used to investigate the human nervous system from anatomical and functional perspectives;
• describe the various regions of the brain and spinal cord, differentiate their functions, and assess their potential clinical relevance;
• understand the topographic and functional anatomy of the sensory organs and the anatomy of the peripheral nervous system, including both cranial and spinal nerves;
• understand the vascularization of the nervous system and the circulation of cerebrospinal fluid;

Splanchnology
• describe the various body regions using appropriate terminology and topographic criteria, including considerations of embryological development;
• describe the relationships, anatomical position, and gross anatomy of individual organs;
• understand the integrated function of various organs within body systems and apparatuses;
• describe, in appropriate detail, the vascularization and innervation of the heart and the various organs and systems within the thoracic, abdominal, and pelvic cavities;
• understand microscopic and ultrastructural anatomy as the basis of organ function;
• be able to recognize and describe microscopic anatomy specimens;
• understand the normal radiological anatomy of various body regions and the organs located within them;
• describe and recognize ultrasound, CT, MRI, and X-ray images using appropriate anatomical terminology;
• understand the morpho-functional interactions between organs and systems.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2025)	comune	11	BIO/16, BIO/16

Anatomy [1209106]

Offerta didattica a.a. 2026/2027

Docenti: GIORGIO VIVACQUA

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi
Starting from the fundamentals of Chemistry, Biology and Physics, the students must acquire a thorough knowledge and understanding of the organization of the human body, considering both topographical and systematic anatomy. Furthermore, students must understand the systematic and functional anatomy of the locomotor system and the general organization of body cavities and body regions, with particular attention to clinical and functional anatomy. Emphasis will be placed on the ability to recognize and describe anatomical structures both on real specimens and radiological images.

Prerequisiti
To be eligible to take the Body Structural Organization exam, students must have passed the following exams:
• Biology
• General Physics

Contenuti del corso
General Anatomy: Overview of the organization of the body. Nomenclature and Anatomical terminology.

Superficial Anatomy. Reference planes. General classification of the organs.

Topographic and superficial Anatomy of the body regions: the head and the neck, the thorax, the abdomen and the pelvis. Clinical importance of superficial anatomy. General organization of the different body regions and of the body cavities.

Locomotor Apparatus. Classification of bones: long bones, short bones and flat bones. Classification of joints. Diarthrosis and sinarthrosis. Classification of muscles. Nomenclature and classification of movements. The skull: splancnocranium and neurocranium. The jaw. Muscles of the head and the neck. Masticatory muscles. The spine: vertebrae. Joints of the spine. Intervertebral disks and ligaments of the spine. The thorax: ribs and sternum. Muscles of the spine, thorax and abdomen: postural muscles, muscles involved in breathing and myo-fascial organization of the abdominal wall. The inguinal region and the inguinal canal. Bones, joints and muscles of the upper limb. Bones, joints and muscles of the lower limb. Principles of kinematic and systematic kinematics of the different joints.

Introduction to the skull and vertebral cavity and general organization of the nervous system.

Cardiovascular layout: generalities about the blood supply to the parietal regions of the neck, the thorax, the abdomen
and the upper and lower limbs.

Metodi didattici
The course objectives will be achieved through a combined approach integrating traditional inductive teaching methods, innovative pedagogy, problem-based learning, and interactive learning; this includes practical activities using anatomical specimens and radiological images, as well as artificial intelligence software applied to virtual anatomical simulation.

Modalità di verifica dell'apprendimento
The assessment of learning will consist of an oral exam covering the general anatomy and the locomotor apparatus focused more specifically on the analysis of an anatomical specimen or radiological image, followed by a written test consisting of four open questions about locomotor apparatus, general aspects of cardiovascular and nervous system and kinematics.

The final grade for Anatomy will be determined by the score obtained in the written exam, averaged with the score

of the oral exam with the proportion of 6:4.
The exam will be considered passed with a minimum score of 18/30 and a maximum of 30 with honor.

Testi di riferimento
- Anatomical models and real anatomical specimens
- Radiological images including: XRay, CT, MRi, virtual dynamic ultrasounds
- Virtual Anatomy Table (Sectra)
- Complete Anatomy software (Elsevier)

Principal Text books
- Anastasi et al. Treatise of Human Anatomy, Topographic Approach and Atlas. 1st Edition, EdiErmes.
- Lippincott Williams & Wilkins - Barbara Young et al. Weather: Histology and Microscopic Anatomy. 6th edition. Elsevier.

Other books
- Susan Standring et al. Grey's Anatomy: The Anatomical Basis of Clinical Practice. 41st Edition. Elsevier;

Other Anatomy Atlas
- Friedrich Paulsen et al. Sobotta Atlas of Human Anatomy. 15th edition. Urban & Fisher (Elsevier);
- Frank H. Netter. Atlas of Human Anatomy. 7th edition. Elsevier.

Embryology and Development
- Keith Moore and T.V.N Persaud et al. The Developing Human. Clinically oriented Embryology. 11th revisited edition. Elsevier.

Risultati di apprendimento specifici
Students will acquire a solid understanding of the general organization of the human body, including both macroscopic, radiological, and clinical anatomy, as well as the functional and topographic anatomical organization, and the relationships between organs.
More specifically, by the end of the course, students should be able to:
• identify, describe, and contextualize anatomical specimens;
• describe radiological images;
Understand and analyze in detail the musculoskeletal system in its structural, topographical, and kinematic components;
•Understand the general organization of the nervous system and the cardiovascular system.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2026)	comune	6	BIOS-12/A

Stampa del 16/10/2026

Biochemistry [1209107]

Offerta didattica a.a. 2026/2027

Docenti: ALESSANDRO LEUTI

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi
The teaching aims at providing the essential knowledge to understand the chemistry behind the main cellular and physiological processes, and the role played by the main organic molecules in these functions. The student will study the structure and function of carbohydrates, lipids, proteins and nucleic acids, and will be introduced to the concept of metabolism and of its regulation in healthy and pathological conditions, while learning the thermodynamics that governs the metabolic fluxes. The course will also feature an application of these concepts to clinical biochemistry, to better understand how these processes are involved in the diagnostic process.

Prerequisiti
A basic knowledge of the cell structure (organelles and compartmentalization) and functions. A basic knowledge of inorganic chemistry concepts such as pH, pKa, solubility, buffer solutions, equilibria, as well as basic concepts of organic chemistry , such as functional groups and species, IUPAC nomenclature and the main reactions of organic molecules.

Contenuti del corso
• Water: water structure and properties; hydrogen bonds and other electrostatic interactions; interaction between water and other organic compounds. Colligative properties.
• Amino acids and proteins: structure and function of amino acids. Classification and chemical-physical properties.
• Three-dimensional structure of proteins: primary, secondary, tertiary and quaternary structure of proteins; Ramachandran plot; protein folding.
• Protein Function: collagen, keratin and oxygen-transporting molecules: structure of hemoglobin and myoglobin, saturation, Bohr Effect, homotropic and heterotropic allosteric modulators of hemoglobin.
• Thermodynamics: concept of entropy, enthalpy and Gibbs free energy. - Enzymes: structure and properties of enzymes; catalysis; Michaelis-Menten kinetics; V0, Vmax and Km. Lineweaver-Burk plot. Reversible and irreversible inhibition
• Structure and role of carbohydrates: monosaccharides; oligosaccharides; polysaccharides; O- and N-glycosidic bond; starch; cellulose; glycogen.
• Nucleotides and nucleic acids: structure and functions; DNA and RNA.
• Structure and function of lipids: fatty acids; phospholipids; cholesterol; Eicosanoids and PUFA-derived endogenous signalling lipids.
• Biological membranes and transport.
• Biosignalling:
• Carbohydrate metabolism and its regulation: glycolysis; gluconeogenesis; pentose phosphate pathway; regulation of carbohydrate metabolism; glycogenesis; glycogen breakdown.
• Structural Biology

Metodi didattici
Ex-cathedra lectures, reading and interpretation of scientific literature, weekly student counselling.

Modalità di verifica dell'apprendimento
The written exam consists of 25 multiple-choice questions, each with five answer options.
Students who answer correctly at least 15 out of 25 questions (corresponding to a grade of 18/30) will obtain a passing mark and will be admitted to the oral examination.
Each correct answer is worth 1.2 points, while each incorrect or unanswered question is worth 0 points.
The score achieved on the written test will serve as the entry grade for the oral interview.

Testi di riferimento
• Lehninger Principles of Biochemistry (D.L. Nelson and M.M. Cox) (main text)
• Voet’s Principles of Biochemistry (facultative)

The teacher will provide all the slides used in the lectures, as well as learning objectives of each topic covered in class.

Scientific papers

Risultati di apprendimento specifici

Knowledge and understanding
At the end of the course, the student must be able to describe the structure and general functions of the main organic molecules in human biology, as well as to describe the main pathways that orchestrate the metabolism of carbohydrates, lipids, proteins and nucleic acids, as well as the main elements of clinical biochemistry to which these elements are applied.

Applying knowledge and understanding
At the end of the Course, the student must be able to act to understand the main roles of organic molecules involved in cellular processes, and should be able to describe the connections between different metabolic pathways as they are constantly modulated during cellular homeostasis. He/she/they should be able to apply these concepts to the human pathologies that will be covered during the lectures.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2026)	comune	5	BIOS-07/A

Stampa del 16/10/2026

Biochemistry [1209202]

Offerta didattica a.a. 2026/2027

Docenti: ALESSANDRO LEUTI

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
The teaching aims at providing the essential knowledge to understand the chemistry behind the main cellular and physiological processes, and the role played by the main organic molecules in these functions. The student will study the structure and function of carbohydrates, lipids, proteins and nucleic acids, and will be introduced to the concept of metabolism and of its regulation in healthy and pathological conditions, while learning the thermodynamics that governs the metabolic fluxes. The course will also feature an application of these concepts to clinical biochemistry, to better understand how these processes are involved in the diagnostic process.

Prerequisiti
A basic knowledge of the cell structure (organelles and compartmentalization) and functions. A basic knowledge of inorganic chemistry concepts such as pH, pKa, solubility, buffer solutions, equilibria, as well as basic concepts of organic chemistry , such as functional groups and species, IUPAC nomenclature and the main reactions of organic molecules.

Contenuti del corso
• Water: water structure and properties; hydrogen bonds and other electrostatic interactions; interaction between water and other organic compounds. Colligative properties.
• Amino acids and proteins: structure and function of amino acids. Classification and chemical-physical properties.
• Three-dimensional structure of proteins: primary, secondary, tertiary and quaternary structure of proteins; Ramachandran plot; protein folding.
• Protein Function: collagen, keratin and oxygen-transporting molecules: structure of hemoglobin and myoglobin, saturation, Bohr Effect, homotropic and heterotropic allosteric modulators of hemoglobin.
• Thermodynamics: concept of entropy, enthalpy and Gibbs free energy. - Enzymes: structure and properties of enzymes; catalysis; Michaelis-Menten kinetics; V0, Vmax and Km. Lineweaver-Burk plot. Reversible and irreversible inhibition
• Structure and role of carbohydrates: monosaccharides; oligosaccharides; polysaccharides; O- and N-glycosidic bond; starch; cellulose; glycogen.
• Nucleotides and nucleic acids: structure and functions; DNA and RNA.
• Structure and function of lipids: fatty acids; phospholipids; cholesterol; Eicosanoids and PUFA-derived endogenous signalling lipids.
• Biological membranes and transport.
• Biosignalling:
• Carbohydrate metabolism and its regulation: glycolysis; gluconeogenesis; pentose phosphate pathway; regulation of carbohydrate metabolism; glycogenesis; glycogen breakdown.
• Structural Biology

Metodi didattici
Ex-cathedra lectures, reading and interpretation of scientific literature, weekly student counselling.

Modalità di verifica dell'apprendimento
The written exam consists of 25 multiple-choice questions, each with five answer options.
Students who answer correctly at least 15 out of 25 questions (corresponding to a grade of 18/30) will obtain a passing mark and will be admitted to the oral examination.
Each correct answer is worth 1.2 points, while each incorrect or unanswered question is worth 0 points.
The score achieved on the written test will serve as the entry grade for the oral interview.

Testi di riferimento
• Lehninger Principles of Biochemistry (D.L. Nelson and M.M. Cox) (main text)
• Voet’s Principles of Biochemistry (facultative)

The teacher will provide all the slides used in the lectures, as well as learning objectives of each topic covered in class.

Scientific papers

Risultati di apprendimento specifici

Knowledge and understanding
At the end of the course, the student must be able to describe the structure and general functions of the main organic molecules in human biology, as well as to describe the main pathways that orchestrate the metabolism of carbohydrates, lipids, proteins and nucleic acids, as well as the main elements of clinical biochemistry to which these elements are applied.

Applying knowledge and understanding
At the end of the Course, the student must be able to act to understand the main roles of organic molecules involved in cellular processes, and should be able to describe the connections between different metabolic pathways as they are constantly modulated during cellular homeostasis. He/she/they should be able to apply these concepts to the human pathologies that will be covered during the lectures.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2025)	comune	7	BIO/10

Stampa del 16/10/2026

English language [12091C2]

Offerta didattica a.a. 2026/2027

Docenti: ADAM JAMES MARTIN

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
The course aims to ensure that all students achieve a level C1 CEFR of English, in order to comfortably manage all other classes of their course of study.

Prerequisiti
Students with a level C1 CEFR or above are eligible for exemption from the course and the exam.

Contenuti del corso
Classes will focuse on all four skills at a C1 level.

Metodi didattici
During the lessons, students work together on grammar and language.

Modalità di verifica dell'apprendimento
The final exam consists of a multiple choice question test, composed of two parts, listening and reading and use of English.

Testi di riferimento
The material will be provided by the teachers.

Risultati di apprendimento specifici
At the end of the course, students are assested at level C1 CEFR.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2026)	comune	4	ANGL-01/C

Stampa del 16/10/2026

English language [1209204]

Offerta didattica a.a. 2026/2027

Docenti: ROBERTA ARONICA

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
The course focuses on scientific terminology and abstract writing.

Prerequisiti
Each student has to pass the first year test before they can take the final exam.

Contenuti del corso
The course focuses on the reading comprehension of medical articles and on abstract writing technique

Metodi didattici
The whole course is taught through frontal lessons and classroom work

Modalità di verifica dell'apprendimento
The final exam is a written test where students have to write the abstract of a scientific article.

Testi di riferimento
The material will be provided by teachers.

Risultati di apprendimento specifici
By the end of the course, students will be able to write abstracts of scientific articles

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2025)	comune	2	L-LIN/12

Stampa del 16/10/2026

General Pathology and Pathophysiology & Pharmacology [1209205]

Offerta didattica a.a. 2026/2027

Docenti: MARIO CIOCE, EMANUELA SALVATORELLI

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi
The objective of the integrated course is to gain an understanding of the human body as a complex ecosystem, encompassing both cellular and tissue levels. This will be achieved by examining the significance of homeostatic mechanisms and their disruption in disease states at the molecular to systemic levels. This program will systematically elucidate the molecular pathogenesis of the most common classes of disease (the genetic basis of disease, adaptive cellular responses to stress and degeneration, inflammation, immunity, hemostasis, and cancer). The learner will gain a clear understanding of the "laboratory to bedside" approach and its broad potential. The student will gain an understanding of the physiological and pathological basis of blood diseases, coagulation disorders, renal and liver failure, neoplastic and cardiovascular diseases, and their diagnosis. Additionally, the course aims to provide general and specific pharmacology knowledge to help the student develop the ability to apply pharmacology principles to medical practice in accordance with evidence-based medicine.

Prerequisiti
An intermediate level knowledge of general chemistry, organic chemistry, and biochemistry, together with knowledge of anatomy, histology, physiology, microbiology, cell biology, and basic immunology, is required.

Contenuti del corso
General Pathology: Knowledge of the relevance of homeostatic mechanisms and their perturbation in disease states, leading to the three fundamental pathogenic mechanisms: degenerative, reactive-inflammation, and neoplastic. From the definition of health and its homeostatic balance and mechanisms to disease development, progression, and healing. Topics will be: Basic mechanisms of genetic and congenital disorders. Cellular Responses to Stress and Toxic Insults: Adaptation, Injury, and Death; Acute and Chronic Inflammation; General Mechanisms of Infectious Diseases; Tissue Renewal, Repair, and Regeneration. Hemodynamic Disorders, Thromboembolic Disease, and Shock. Atherosclerosis and Metabolic Diseases. Environmental and Nutritional Diseases. Diseases of the Immune System. Stem cell organization, aging, and senescence. From stem cells to carcinogenesis. Genetic and Epigenetic make-up of tumor cells. Molecular Pathways of Cancer. Tumor microenvironment and tumor development: cellular signaling and immunological determinants. Hallmarks of Cancer. Future Oncology: from bench to bedside.
General Pathophysiology: Relevance of altered response in determining disease susceptibility, with focus on single system/organ dysfunction. Topics will include homeostatic control of electrolyte balance in disease; pathophysiology of acid-base balance; pathophysiology of the respiratory and cardiovascular systems; renal and hepatic diseases; and pathophysiology of calcium and phosphate metabolism. Diseases of the thyroid and parathyroid. Diseases of the pancreas. Diseases of the breast, ovary, endometrium, and cervix. Metabolic disorders and metabolic syndrome. Nutritional diseases.
Pharmacology: The course of Pharmacology aims at making the student acquainted with general and specific knowledge of drug development, pharmacokinetics, pharmacodynamics, as well as with genetic drivers and/or perturbers of efficacy and/or safety, and the role that such factors may have in defining pharmacological opportunities in investigational and real-life settings. The course offers a program of topics selected from general pharmacology: clinically oriented principles of pharmacokinetics, pharmacodynamics, and drug metabolism; principles of drug development and clinical trials; principles of mutagenesis and teratogenesis; genetically-oriented new methodologies in drug development and clinical trials; efficacy and safety of drugs; bioequivalent and biosimilar drugs.

Metodi didattici
The course includes lectures, monographic courses, and collaboration between different workshops. Discussions and specific forums/topics will be set up from time to time to discuss scientific articles or relevant topics agreed with the students from formal teaching activities. External speakers may be invited to lecture on specific topics. Speakers will be chosen and invited as subject matter experts, with historical and philosophical perspectives as well.

Modalità di verifica dell'apprendimento
Final examination: the assessment will consist of a written examination of General Pathology, Pathophysiology, and Pharmacology, followed by an oral interview for General Pathology and Pathophysiology, including the discussion

(optional) of an article published in a journal with JCR IF chosen by the student under the supervision of a tutor during the course. The oral examination may begin with a discussion of the chosen article and will then focus on questions relating to general pathology and pathophysiology. For the final score, the relative weight will be distributed according to the number of CFU for each course.

Testi di riferimento

General Pathology: Robbins & Cotran: pathologic basis of disease, 10th edition (Textbook). Le diapositive saranno disponibili al termine di ciascuna sessione concettuale unitamente agli articoli scelti e alla revisione della letteratura utile ai fini didattici
Pharmacology: slides used in academic lectures and uploaded to the e-learning platform;

- Bertram G. Katzung and Anthony J. Trevor. Basic and Clinical Pharmacology, 15th edition. Lange Publishing Co.;

- Goodman and Gilman's The Pharmacological Basis of Therapeutics, 14th edition. McGraw-Hill Publishing Co.

Risultati di apprendimento specifici

D1- CONOSCENZA E CAPACITÀ DI COMPRENSIONE

The student must demonstrate knowledge of the main mechanisms responsible for the development of diseases in humans: the causes of cell/tissue damage and death; fundamental pathogenetic mechanisms associated with immunity, inflammation, and carcinogenesis; and heredity of genetic diseases. These skills will be assessed through the final examination. In addition, the student should be familiar with the main concepts of human pharmacology, including PK and PK/PD, as well as drug-response variability and the main effects of drug-drug interactions.
2-CAPACITÀ DI APPLICARE CONOSCENZA E COMPRENSIONE

The student should be able to use the principles of General Pathology and Pharmacology to understand pathogenetic mechanisms. The student should have acquired knowledge enabling him/her to recognize the mechanisms responsible for disease development and to identify specific pathological conditions with practical applications in the prevention, diagnosis, and therapy of diseases. The ability to use these tools will be an integral part of the student's future professional life, in health care and/or experimental research. These skills will be assessed through the final examination and the written exam.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2025)	comune	9	BIO/14, MED/04, MED/04, MED/04

Stampa del 16/10/2026

Immunology & Genetics [1209201]

Offerta didattica a.a. 2026/2027

Docenti: FIORELLA GURRIERI

Periodo: Primo Ciclo Semestrale

Obiettivi formativi

Specific objectives
☐ Medical Genetics: students will achieve knowledge concerning genetic/molecular mechanisms underlying different types of genetic diseases (true Mendelian disorders and multifactorial disorders) in different medical disciplines. Many clinical cases will be presented and discussed during the lectures.
☐ Basic Immunology: This module is designed to develop an understanding of how the body recognizes and responds to foreign agents, infectious organisms and malignancy as well as to self. The module gives a comprehensive account of the individual components of the immune system and how they interact, and the discussion of mechanisms involved in the aetiology and treatment of disease states. Malfunctioning of the immune system will be introduced with examples of some of the main disease states in autoimmunity, allergies and inherited and acquired immunodeficiency.
☐ Molecular Biology: By the end of the course, students should be proficient in performing and interpreting a wide range of molecular biology techniques used in clinical laboratories.

Prerequisiti

Propedeutics of Medicine is propedeutic for Immunology and Genetics

Contenuti del corso

Medical Genetics Programme
• Variant classification according to the American College of Medical Genetics
• The genetic basis of neurodevelopmental disorders
• Epigenetic signatures
• The genetic basis of neuronal diseases
• Oncogenetics
• The genetic basis of endocrine diseases
• The genetic basis of autoinflammatory diseases
• Cardiogenetics
• Precision Medicine
• Complex diseases and polygenic risk score
Basic Immunology Programme

Main Teaching Schedule (12 Fridays × 2.5 hrs = 30 hours):
Week 1 - Introduction to the module; Why do we need an immune system? What is it for? (FDA)
Week 2 – Overview of the cells of the immune system (FDA)
Week 3 – Origin and development of the Immune System + Immunodeficiencies (FDA)
Week 4 - Innate immune response: cell types (AI)
Week 5 - Innate immune response: molecules and signalling (AI)
Week 6 – Adaptive immune response: molecules and signalling (FDA)
Week 7 – Adaptive immune response: T cells (FDA)
Week 8 – Adaptive immune response: B cells (AI)
Week 9 – Biologics and therapeutic antibodies (AI)
Week 10 - Inflammation: acute and chronic (FDA)
Week 11 – Autoimmunity: central and peripheral tolerance (FDA)
Week 12 - Immunization and vaccines (FDA)
Additional Sessions (7.5 hours total):
• AI: 2.5 hrs tutorial + optional lecture on Advances in Immunology (dates TBC)
• FDA: 5 hrs on Advances in Immunology (dates TBC)
Molecular Biology Programme: Molecular Biology Programme
1. Introduction to Molecular Biology Techniques in Clinical Laboratories
• Understand the role and importance of molecular biology techniques in clinical diagnostics.
• Describe the basic principles of molecular biology methods commonly used in clinical settings.
2. DNA/RNA Extraction and Purification
• Demonstrate proficiency in the extraction and purification of DNA and RNA from various clinical samples (e.g.,

blood, tissue, saliva).
• Understand the principles behind different extraction methods (e.g., organic extraction, column-based purification).
• Assess the quality and quantity of extracted nucleic acids using spectrophotometry and gel electrophoresis.
3. Polymerase Chain Reaction (PCR) and Quantitative PCR (qPCR)
• Explain the principles and components of PCR and qPCR.
• Perform PCR and qPCR to detect and quantify specific DNA sequences.
• Analyze and interpret PCR and qPCR results, understanding the significance of Ct values in qPCR
4. Reverse Transcription PCR (RT-PCR)
• Understand the principles of reverse transcription and its application in converting RNA to cDNA.
• Perform RT-PCR to detect and quantify RNA targets.
• Analyze RT-PCR results, including the interpretation of gene expression levels.
5. ELISA (Enzyme-Linked Immunosorbent Assay) and Immunoenzymatic Assays
• Understand the principles and applications of ELISA and other immunoenzymatic assays in clinical diagnostics.
• Perform ELISA to detect and quantify proteins, antibodies, and antigens in clinical samples.
• Analyze and interpret ELISA results, understanding the clinical relevance of detected biomarkers.
6. Flow Cytometry (Cytometry)
• Understand the principles of flow cytometry and its applications in clinical diagnostics.
• Perform flow cytometry to analyze cell populations and identify specific cell types based on surface markers.
• Analyze and interpret flow cytometry data, understanding the clinical implications of cell population changes.

Metodi didattici
The teaching methodology will consist of a combination of traditional platform lessons, class seminars, interactive discussion on selected topics or on topics of interest for the students

Modalità di verifica dell'apprendimento
The examination of the contents will be a separate written test of the 3 subjects containing multiple choice questions (MCQs), short essays and exercises. The written test will be composed as follows:

MEDICAL GENETICS: 16 multiple choice questions (2 points each for correct answers) no penality for wrong answered questions.
BASIC IMMUNOLOGY: The test is based on 28 multiple-choice (MC) and 5 Single Answer (SA) questions and will last 60mins. Each MCQ question has a single best answer. Each answer to the SAQ can be attempted twice.
MOLECULAR BIOLOGY :
15 multiple choice questions (2 points each correct answers). No penalty is foreseen for wrong answers.

In case of irregularities during the written test (Genetics), the teachers can request an oral exam at their discretion

Testi di riferimento
GENETICS
Suggested textbooks:
Medical Genetics - Jorde Carey Bamshad, 6th edition, Elsevier
Medical Genetics - G. Bradley Schaefer, James N. Thompson Jr. Mc Graw Hill
Other materials: scientific articles and slides uploaded on e-learning.
BASIC IMMUNOLOGY:
Suggested Textbook: Janeway's Immunobiology by Kenneth Murphy and Casey Weaver
Basic Immunology: Functions and Disorders of the Immune System Paperback by Abbas MBBS, Abul K. (Author), Lichtman MD PhD, Andrew H. H. (Author), Pillai MBBS PhD, Shiv (Author)
Immunology Made Ridiculously Simple Paperback – 1 May 2009
MOLECULAR BIOLOGY :
Suggested Textbook:
Molecular Biology Techniques, 4th Edition, A Classroom Laboratory Manual - Authors: Sue Carson Heather Miller Melissa Srougi D. Scott Witherow
Molecular Cell Biology: (8th Revised edition) - Authors: Harvey Lodish, Arnold Berk, Chris A. Kaiser, Angelika Amon, Hidde Ploegh, Anthony Bretscher, Monty Krieger, Kelsey C. Martin
Additional material: slides uploaded on the e-learning platform.

Risultati di apprendimento specifici
☐ Medical Genetics: students will acquire knowledge about genetic diseases as neurodevelopmental disorders, neurological disorders, inherited cancer syndromes, autoinflammatory diseases, endocrine diseases, cardiogenetics and others.
☐ Basic Immunology : On completion of this module, you should be able to demonstrate:
A basic understanding of the types of immune response and cell and tissue components of the immune system.
An understanding of the interactions between the molecular and cellular components of the immune system.
An understanding of the relationship between inflammation and immunity
A knowledge of normal immunity and the possible mechanism involved in overactive and suppressed immunity that result in autoimmunity, e.g. rheumatoid arthritis, diabetes mellitus, cancer and immunodeficiency syndromes.
The ability to discuss the consequences of the immune response to a donated organ or tissue

☐ Molecular Biology: At the end of the course, students should be able to achieve an adequate knowledge of understanding the role and importance of molecular biology techniques in clinical diagnostics. Describe the basic principles of molecular biology methods commonly used in clinical settings.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2025)	comune	6	MED/03, MED/04, BIO/11

Stampa del 16/10/2026

Italian language [1209203]

Offerta didattica a.a. 2026/2027

Docenti: ROBERTA ARONICA

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
The course is aimed at enhancing knowledge of the foreign language. The object of the course is the deepen knowledge of grammatical and syntactic Italian structures at level B1 CEFR, assigned as the educational, course objective. The teaching activities are taught by teachers who collaborate with the University Language Centre.

Prerequisiti
Each student is required to take a placement test to identify their initial level of English language.

Contenuti del corso
In the 2 CFU semester-long curricular course, logical-grammatical structures and Italian vocabulary are studied in depth in order to achieve the goals associated with this course.

Metodi didattici
The course is offered in the classroom through lectures and exercises.

Modalità di verifica dell'apprendimento
Final exam.
Learning assessment is conducted via a written test consisting of grammar exercises, text comprehension, writing and listening, and a short oral test.
The final grade is expressed in thirties.

Testi di riferimento
The teacher will provide the teaching material during the course.

Risultati di apprendimento specifici
By the end of the course, the student must have acquired a level of Italian B1 CEFR.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2025)	comune	2	L-FIL-LET/12

Stampa del 16/10/2026

Italian language [12091C1]

Offerta didattica a.a. 2026/2027

Docenti: ROBERTA ARONICA

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
The course is aimed at enhancing knowledge of the language. The object of the course is to go into detail with elementary Italian grammatical and syntactic structures. The teaching activities are taught by native speakers who collaborate with the University Language Centre.

Prerequisiti
Each student is required to take a placement test to identify their initial level of Italian. Students with a level B1 or higher can obtain exemption.

Contenuti del corso
In the 1 CFU semester-long curricular course, elementary logical-grammatical structures and Italian vocabulary are studied in depth.

Metodi didattici
The course is offered in the classroom through lectures and exercises.

Modalità di verifica dell'apprendimento
Final exam.
Learning assessment is conducted via a written test consisting of grammar exercises, text comprehension, writing and listening.

Lexical and grammatical knowledge and skills related to comprehension and written production are evaluated through a written test and a listening test with a respective open-ended comprehension questions at course level. Communication skills (speaking) are assessed by the teacher during the course through interactive activities. The test is evaluated on a pass or fail basis.

Testi di riferimento
The teacher will provide the teaching material during the course.

Risultati di apprendimento specifici
By the end of the course, the student must have acquired elementary level knowledge of Italian.
Knowledge and understanding
At the end of the course, the student should be able to:
- read and understand texts in Italian and answer comprehension questions;
- understand conversations and answer questions about what has been heard;
- produce a written text on a general topic of at least 100 words.

Ability to apply knowledge and understanding
The student will be encouraged to develop a critical approach in their comprehension capabilities by listening to Italian audios and in written production through teaching methods gradually introduced during the course. Students will be urged to independently self-correct their own papers while verifying the level of understanding of other texts analyzed during the frontal lessons.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.

Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2026)	comune	4	LIFI-01/A

Stampa del 16/10/2026

Medical Humanities (1) [1209102]

Offerta didattica a.a. 2026/2027

Docenti: GIAMPAOLO GHILARDI, LAURA LEONDINA CAMPANOZZI

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
According to E. Pellegrino, one of the most famous bio-ethicists, fundamentally medicine is moral. It is neither a natural nor a science although it often depends upon both for its technical and communal progress. Medicine especially as clinical practise is moral because the defining element of its practise is the patient-physician relationship, and that relationship is profoundly principled and often based upon ethical rules and duties. The integrated course “Medical Humanities 1” aims to provide students with some essential tools from the humanities (Anthropology, Ethics, and Humanities) necessary to understand the nature of the patient-physician relationship, keeping in mind what William Osler, a pioneer of modern Medicine said: “The good physician treats the disease; the great physician treats the patient who has the disease.” In order to be able to reach this goal in their profession, medical students need to know themselves, as well as their future patients, as human beings, in the context of histories, cultures and values.
The course therefore aims to provide a clear understanding of the rich and large set of values, virtues, and moral characteristics connected with medical practice.
Elements of Human Flourishing will be presented within the course.

Prerequisiti
None

Contenuti del corso
Introduction to health humanities: Proff. Campanozzi, Di Stefano.
In the Medical Humanities course, we will focus both on philosophical aesthetics and moral philosophy, analyzing several classical readings from Western and non-Western cultures. Moreover, we will face a number of issues arising from current multidisciplinary research in philosophy of beauty and the idea of good. Topics of the course will be:
(Di Stefano) defining medical humanities; philosophy, aesthetics and medicine; the arts and medicine; the perception of beauty; the evolutionary origins of the appreciation of beauty and art; neuro-aesthetics of music and music therapy; (Campanozzi): the ethics of work well done; diagnosis as an anthropological issue; trust in medicine and in the institution; human error and sharing; corporeity and relationship; wisdom, self-knowledge and conflict in healthcare.

Anthropology: Prof. Ghilardi
Introduction/general overview. What anthropology is. On Truth. Anthropology and Technologies. Homo faber/homo sapiens. Anthropology and industry 4.0. Anthropology and Medicine. Transhumanism. Posthumanism. Humanism and humanities. Leonardo and humanism. Recap of the programme.
There is a module with specific contents on the Human Flourishing as a multidimensional framework of the human well-being. Particular attention will be paid to significant social relationships and to the relevance of the human work for the common good.

Ethics: Prof. Ghilardi
Introduction/general overview. What ethics is. Why ethics in medicine. Ethical schools. Free will. Libet’s experiments on free will. The trolley dilemma. Utilitarianism and consequentialism. Consciousness. Agency: what does it mean to be a moral agent. Ethics and Rhetoric. The good words. Ethics and communication between doctor and patient. The notion of personhood. Virtues. Epistemic virtues. Happiness and its value in professionalism. Professional virtues. Virtues for science. The good doctor. Precision Medicine or Personalized Medicine. Recap of the programme.

Metodi didattici
Besides the frontal lecture it will be possible to have seminars and team work. The teaching methods promote classroom engagement and cooperation. Both the interactive lectures and group activities will entail the active involvement of students.

Modalità di verifica dell'apprendimento
The final exam will take place at the end of the course, in the sessions scheduled by the academic calendar. The

exam will be written made of multiple-choice questions. The questions will test the knowledge related to the Aims and Objectives of the course, described above, and ability to apply it.

Testi di riferimento

Introduction to the health Humanities:
• D. E. Cooper (ed), Aesthetics: The Classic Readings, Wiley Blackwell, 2019
• • J.F. Drane, Becoming a good doctor. The place of Virtue and character in Medical Ethics, Rowman & Littlefield Publisher 1995.
• E.J. Cassell, Talking with the patients, vol. 1, The Mit Press, 1985.

Anthropology:
• James. A. Marcum, The virtuous physician, the role of virtue in Medicine, Springer, 2012
• G. Ghilardi, "Analogia Sensuum: The knowing body", in: N. Di Stefano, V. Tambone (eds.), About the living body, Nova science, New York 2016, pp. 15-31
• G. Ghilardi, L. Campanozzi, V. Tambone, "Humanities: Methods for Medical Training", in Journal of Medical Diagnostic Methods, vol. 5, Issue 1, 2016

Ethics:
• J. Seifert, The philosophical diseases of medicine and their cure, philosophy and ethics of medicine, Springer, 2004
• V. Tambone, G. Ghilardi, "An ethical evaluation methodology for clinical cases", Persona y Bioética, 20 (1), 2016, pp. 48-61
• G. Ghilardi, "Epistemological remarks on Libet's experiments on free will", Rivista Internazionale di Filosofia e Psicologia, 6 (1), 2015, pp. 110-119
• V. Tambone, G. Ghilardi, Philosophy and Deontology of Medical Practice, Ethics of the work well done in bio-medical sciences, SEU, Roma 2020

Risultati di apprendimento specifici

- Knowledge and understanding of what it means to be a human being, what are human values and virtues.
- Applying knowledge and understanding. The student will be able to develop ethical reasoning in biomedical sciences.
- Making judgments. The student will be able to evaluate the ethical issues connected with the practice of Medicine.
- Communication skills. The student will develop the ability not just to convey messages to the patient and/or her families, but also to communicate the commitment to her condition.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2026)	comune	5	PHIL-03/A, PHIL-03/A, MEDS-25/A

Stampa del 16/10/2026

Medical Humanities (2) [1209103]

Offerta didattica a.a. 2026/2027

Docenti: LUCA BORGHI, FRANCESCA FIORI

Periodo: Ciclo Annuale Unico

Obiettivi formativi
The integrated course “Medical Humanities 2” aims to provide students with notions and essential tools from some medical humanities (history of medicine and clinical communication skills) which are, today, critical for the education of professionals who cannot rely simply on a hyper-specialized and reductionist approach to biomedical knowledge. Some of the contents of the course will refer to the Human Flourishing as a multidimensional framework of the human well-being.

The Clinical Communication Skills (CCS) course aims to equip international medical students with essential communication skills for clinical practice in English-speaking healthcare settings. Emphasis is placed on patient-centered communication, including effective use of the Calgary-Cambridge model for medical interviews, active listening, empathy, and the appropriate use of nonverbal cues. Students will learn to communicate clearly, respectfully, and professionally in a variety of clinical situations, including difficult or emotionally charged encounters. Particular attention will be given to developing confidence and precision in using English for clinical communication, supporting students in navigating the complexity of intercultural interactions in diverse medical environments.

Prerequisiti
No one.

Contenuti del corso
Clinical Communication Skills

1. Introduction to Clinical Communication
Overview of communication challenges in multicultural healthcare settings
Importance of patient-centered communication

2. The Calgary-Cambridge Model for Medical Interviews
Structure and stages of the medical interview
Practical exercises in applying the model

3. Active Listening and Empathy
Techniques for active listening
Demonstrating empathy verbally and nonverbally

4. Nonverbal Communication in Clinical Contexts
Recognizing and using appropriate nonverbal cues
Cultural considerations in nonverbal communication

5. Clear and Respectful Clinical Communication
Explaining medical information in plain English
Avoiding jargon and confirming understanding

6. Managing Difficult Conversations
Handling emotional or reluctant patients
Strategies for professional and sensitive communication

7. Intercultural Communication in Healthcare
Navigating language and cultural differences
Building rapport across diverse backgrounds

8. Practical Role-plays and Simulations
Applying learned skills in simulated clinical scenarios
Feedback and group discussion

9. Course Review and Reflective Practice
Summary of key skills
Reflecting on personal communication style and areas for improvement

History of Medicine
(Where not otherwise stated the lectures will be given by Luca Borghi)
1. Introduction
2. Ancient medicine. Hippocrates – Part 1
3. Ancient medicine. Hippocrates – Part 2
4. Presentation of intermediate assignments
5. Galen. The origin of hospitals.
6. Medieval medicine
7. Modern medicine (Vesalius, Harvey and Morgagni)
8. Edward Jenner and smallpox
9. René Laennec and tuberculosis – Part 1
10. René Laennec and tuberculosis – Part 2
11. John Snow and cholera – Part 1
12. John Snow and cholera – Part 2
13. Semmelweis, puerperal fever and the importance of numbers – Part 1
14. Semmelweis, puerperal fever and the importance of numbers – Part 2
15. Luis Pasteur and Robert Koch: the birth of Microbiology – Part 1
16. Luis Pasteur and Robert Koch: the birth of Microbiology – Part 2
17. What is the point of a Physician? – Part 1 (David Leslie)
18. What is the point of a Physician? – Part 2 (David Leslie)
19. On Normality - Part 1 (David Leslie)
20. On Normality - Part 2 (David Leslie)
21. A Brief History of Death – Part 1 (David Leslie)
22. A Brief History of Death – Part 2 (David Leslie)
23. The golden age of Surgery - Part 1
24. The golden age of Surgery - Part 2
25. Women in medicine. Elizabeth Blackwell – Part 1
26. Women in medicine. Elizabeth Blackwell – Part 2
27. William Osler and the take-off of American Medicine – Part 1
28. William Osler and the take-off of American Medicine – Part 2
29. Charles West and the invention of paediatrics – Part 1
30. Charles West and the invention of paediatrics – Part 2
31. Brain and Mind: the history of a troublesome relationship – Part 1
32. Brain and Mind: the history of a troublesome relationship – Part 2
33. History of cardiac surgery – Part 1
34. History of cardiac surgery – Part 2
35. History of malaria – Part 1
36. History of malaria – Part 2
37. Deeds and Misdeeds of Biomedical Experimentation on Human Beings – Part 1
38. Deeds and Misdeeds of Biomedical Experimentation on Human Beings – Part 2
39. When Disease Changes History by Striking People (Sal Mangione)
40. When Disease Changes History by Striking Leaders (Sal Mangione)
41. Groupthink, Collective Evil and the Holocaust: Implications for Health Care – Part I (Sal Mangione)
42. Groupthink, Collective Evil and the Holocaust: Implications for Health Care – Part I (Sal Mangione)
43. Virchow at 200 and Lown at 100: Physicians as Activists (Sal Mangione)
44. The (Lost) Archetypes of Medicine (Sal Mangione)
45. Leonardo at 500: The Anatomist and the Creator – Part I (Sal Mangione)
46. Leonardo at 500: The Anatomist and the Creator – Part II (Sal Mangione)
47. The Shroud of Turin and the Scientific Evidence – Part I (Sal Mangione)
48. The Shroud of Turin and the Scientific Evidence – Part II (Sal Mangione)

Metodi didattici

History of medicine: lectures with discussion, and supervised individual work. The supervised individual works will allow students to benefit from blended learning methodologies such as “learning-by-doing” (knowledges and abilities connected with the video presentation of a book about a historical-medical topic, chosen by th student and approved by the professor) and “creative writing” (through a written short essay after the lectures by professor Mangione). Experiential teaching: some visits to health-related historical places, and a guidd tour of the museum of history of medicine at Sapienza University in Rome.

The CCS course will employ a blended teaching approach that combines traditional lectures with active and

participatory learning methods. Alternative strategies such as role-plays, clinical case simulations, group discussions, and video analyses will be used to promote practical application of communication skills in realistic settings. This approach aims to engage students actively, develop critical thinking, and facilitate experiential learning while providing a solid theoretical foundation. The variety of activities will also help accommodate the diverse linguistic and cultural backgrounds of international students.

Modalità di verifica dell'apprendimento

The learning assessment of the course will take place through successive steps and the evaluation of both oral talks and practical assignments.

HoM: the video presentation (5') of the personal reading is due by the end of Christmas Holidays. The written reflective essay (about 500 words) about professor Mangione's lectures is due by the end of May. The final oral exam (about 15') about the general program (textbook plus lectures by Professors Leslie and Borghi) can be taken starting from the Summer session.

CCS: The exam will be oral, aiming to assess students' ability to effectively apply clinical communication skills in English. During the exam, students will be required to demonstrate mastery of the Calgary-Cambridge model, active listening and empathy skills, management of difficult conversations, and appropriate use of nonverbal communication in simulated clinical contexts. This format allows for a direct evaluation of communication competencies, clarity of expression, and the ability to adapt to various clinical and cultural situations

HoM: evaluation of the video presentation of personal reading (up to 5 points); evaluation of the reflective essay on Professor Mangione's lectures (up to 10); final oral talk about lectures by Professors Leslie and Borghi (up to 20). Final grade calculated out of 30. When more than 30 points are obtained by the student, final grade will be "30 with honors".

CCS: Final grade calculated out of 30.

Final grade of MH2 will be a weighted average of the final grades in CCS (1/5) and HoM (4/5).

Testi di riferimento

History of Medicine

- Luca Borghi, Sense of Humors. The Human Factor in the History of Medicine (Amazon KDP 2022)
- a book related to the course topic of student's choice

Clinical Communication skills

- Ha, JF, Longnecker, N. Doctor-Patient Communication: A Review (Ochsner Journal, 2010)
- Kurtz S, Silverman J. The Calgary-Cambridge Observation Guide. Medical Education. 1996.
- Silverman, Kurtz, Draper, Skills for Communicating with Patients, Radcliffe
- simulated clinical interview videos

Risultati di apprendimento specifici

By the end of the HoM course, students will be able to:
- Show their knowledge and understanding of the fundamental stages in the evolution of medical and healthcare theory and practice, with special reference to the last two centuries.
- Display ability of making judgments through the choice of some individual in-depth paths, as the reading, analysis and video-presentation of a book of personal choice. Further, students will be invited to peer-evaluate their collegues' individual works.
- Elements of Human Flourishing will be presented within the course, with the aim of foster student's reflections on the importance of significant social relationships and on the relevance of the human work for the common good.

By the end of the CCS course, students will be able to:
- Demonstrate effective use of the Calgary-Cambridge model to structure patient-centered medical interviews in English.
- Apply active listening and empathy skills to enhance patient rapport and trust in diverse clinical scenarios.
- Interpret and appropriately use nonverbal communication cues to support verbal interactions.
- Communicate complex clinical information clearly and respectfully to patients, including those from different cultural backgrounds.
- Manage difficult or emotionally charged conversations with professionalism and sensitivity.
- Exhibit confidence and accuracy in clinical communication in English, adapting language use to various patient needs and contexts.
- Recognize and navigate intercultural communication challenges within healthcare settings.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2026)	comune	5	MEDS-02/C, PSIC-03/A

Stampa del 16/10/2026

Microbiology [1209208]

Offerta didattica a.a. 2026/2027

Docenti: GIOVANNI GHERARDI

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi
Microbiology is a course for medical students based on clinical microbiology, encompassing clinical bacteriology, mycology, virology, and parasitology, acquiring major knowledges of general concepts of microbial structure, pathogenesis, host-pathogen interactions, and laboratory-based management of infectious diseases. The principal aims of the course will be highlight the major characteristics and pathogenesis of microorganisms of medical importance causing infectious diseases in humans. Indeed, the importance of pathogens, such as bacteria, fungi, viruses and parasites, will be deeply presented and discussed in order to allow students to be able to critically resolve clinical situations and to interpret the pathogenesis of infectious diseases and the wide array of microbiology laboratory tests, including conventional and molecular microbiology and immunology. Considering the increasing importance of antimicrobial resistance as a critical global health threat, appropriate knowledges and skills for conventional and innovative diagnostic procedures applicable to medical practice will be acquired in the light of diagnostic and diagnostic stewardship programs to fight the phenomenon of antimicrobial resistance.

Prerequisiti
The proper understanding of the principles of Microbiology contents requires an appropriate knowledge of basic mathematics, physics, general, inorganic and organic chemistry, cellular biology, physiology, anatomy, and biochemistry.

Contenuti del corso
Microbiology:
Bacteriology and Mycology (Prof Gherardi G) (3 ECTS)
Bacteriology. 1. Generalities on prokaryotes, bacterial cell wall. 2. Cell wall biosynthesis and growth curve, culture media for bacteria. 3. Genetics. (lecture 1, 2 hrs) 4. Bacterial pathogenesis. Exotoxin and endotoxin. (lecture 2, 2 hrs) 5. Preanalytical, analytical, and postanalytical phases in clinical bacteriology. (lecture 3, 2 hrs) 6. Antibacterial agents. (lecture 4, 2 hrs) 7. Blood cultures. (lecture 5, 4 hrs) 8. Bacterial of medical interest: Staphylococcus, Streptococcus, Enterococcus, Neisseria, Corynebacterium, Enterobacterales, Pseudomonas aeruginosa, Vibrio cholerae, Haemophilus influenzae, Legionella pneumophila, Bacillus and Clostridium, Mycobacterium tuberculosis, Spirochetes, Mycoplasma, Chlamydia (lecture 6, 8 hrs).
Mycology. 1. Characteristics of fungi. 2. Main pathogenic fungi in humans, yeasts and molds (Candida spp., Cryptococcus spp., Aspergillus spp., Dermatophytes, dimorphic fungi). 3. Antifungal chemotherapy. 4. Cultural and non-cultural methods used in the diagnosis of fungal infections (lecture 7, 2 hrs).
Parasitology (Prof Casulli A)
1. Basics on parasites and parasitic infectious diseases (1.5hrs). 2. Food-, water- and fecal/oral-borne diseases cause by Protozoa (Entamoeba, Cryptosporidium, Giardia, Toxoplasma): classification, life cycle, pathogenesis, diagnosis, epidemiology and control (2hrs). 3. Vector-borne diseases cause by Protozoa (Leishmania, Plasmodium, Trypanosoma): classification, life cycle, pathogenesis, diagnosis, epidemiology and control (2.5hrs). 4. Food-, water-and fecal/oral-borne diseases cause by Helminths (Anisakidae, Echinococcus, Taenia, Opistorchidae, Schistosoma, STH, Trichinella): classification, life cycle, pathogenesis, diagnosis, epidemiology and control (2hrs). 5. Vector-borne diseases cause by Helminths (Filaria, Onchocerca): classification, life cycle, pathogenesis, diagnosis, epidemiology and control (1hrs). 6. Global health and One health in Parasitology (1hrs).
Virology, part 1 (Prof McKnight A)
Virus structure and classification. Pathogenesis. Route of transmission. Virus oncogenesis. HIV. Respiratory virus infections
Virology, part 2 (Prof De Chiara G)
1. Acute versus latent and persistent virus infections. 2. Respiratory virus infections: focus on influenza virus and epidemic viruses (SARS, MERS, Sars-Cov-2) (lecture 1, 2hrs). 3. Viruses causing recurrent infection: focus on herpesviruses (lecture 2, 2hr). 4. Cute and mucosal infections focus on papillomaviruses (lecture 3, 2hrs) .5 Viruses causing viral hepatitis (lecture 4 2hrs) 6. Antiviral therapy, main drugs available for antiviral therapy. 3. Diagnosis of viral infections: direct vs. indirect detection of infections. Molecular diagnosis of virus infections (lecture 5, 2hrs).

Metodi didattici
The aims of the course will be achieved by a combined approach between traditional inductive teaching method, problem based learning (PBL) and clinical based learning (CBL), supplementary teaching activity. Different teaching

activities will be combined in the same week. Each week will have specific topics and will start with an overview of each topic, through a plenary frontal teaching section. Sessions of PBL or CBL in will be taken in class, where students will discuss the problems and the clinical cases proposed in the introductive frontal section, will be proposed in the same day of traditional frontal teaching. Approximately 80% of the teaching time will be of frontal teaching (about 56-60hrs), 20 % of PBL and CBL sessions, and supplementary teaching activity (approximately 10-14hrs each).

Modalità di verifica dell'apprendimento

Final examination will take place at the end of the course, in the sections scheduled by the academic calendar. The acquisition of knowledge and the ability to apply knowledge will be verified through a written test for each subject of the course.
The written test will contain 10 MCQ and 2 OEQ for Bacteriology/Mycology and for Virology, and 5 MCQ and 1 OEQ for Parasitology. The test should be done in a time of 50 min.
After the written tests the final mark will be the weighted average mark obtained in the different subjects.

For the Microbiology exam each MCQ is 1 pt and each completely correct answer to OEQ is equal to 5 pts, ranging between 1 to 5 depending on the correct level of answer. The total maximum score is 50 pts. The exam will be passed when students totalise a minimum score of 10 points, corresponding to a 18/30 mark, for both Bacteriology/Mycology and Virology, and 5 points (18/30) for Parasitology; the other final marks will be normalized accordingly. If the students severely fail to pass the test for one of the subjects, or if they fall 2 out of 3 subjects they will need to repeat the entire exam.

Testi di riferimento

Textbook, slides, clinical cases, publications will be provided to students.

Suggested Textbooks /(TESTI DI RIFERIMENTO)
• Murray P, Rosenthal K, Pfaller M. Medical Microbiology. Ninth Edition. Elsevier. 2020.
• Goering R, Dockrell H, Zuckerman M, Chiodini P. Mims' Medical Microbiology and Immunology. Sixth Edition, Elsevier. 2018
• Fabrizio Bruschi F, Pozio E. De Carneri. Parassitologia generale e umana. XIV edizione. Casa Editrice Ambrosiana. Zanichelli. 2023
• Griffin DO, Despommier DD, Gwadz RW, Hotez PJ, Knirsch CA. Parasitic Diseases. VII Edition. Parasites Without Borders, Incorporated, 2019

Risultati di apprendimento specifici

Microbiology course, encompasses knowledge on the study of systematic and molecular microbiology and parasitology. The course comprises Bacteriology, Mycology, Virology and Parasitology.
Students have to achieve an adequate knowledge of the systematic study of microbiology and parasitology, acquiring the molecular bases of virus biology and pathogenesis, the organization and genetics of prokaryotic cells, the biochemical and molecular aspects underlying the pathogenesis of bacterial and mycotic infections along with their antimicrobial treatments and antimicrobial resistance mechanisms, the taxonomy, life cycle, geographic distribution, basic biology, epidemiology and pathogenesis of different classes of parasites and vectors (protozoa, nematodes, helminths, arthropods), as well as general concepts of laboratory procedures of clinical specimens for the diagnosis of infectious diseases.
The students must also achieve adequate comprehension and knowledge of treatment of microorganisms of medical importance and to gain knowledge on the general concepts of laboratory-based diagnosis of infectious diseases focusing on the most relevant and critical steps of pre-analytical, analytical and post-analytical specimens' procedures in clinical microbiology. They must learn the most updated innovative diagnostic tests, both molecular and non molecular-based techniques, for an accurate and fast identification and diagnostic testing of microorganisms.
This course is designed to develop an understanding of:
-Aetiology of infectious diseases
-Pathogenesis and most important virulence factors of microorganisms (bacteria, fungi, viruses, parasites) causing infectious diseases
-Clinical microbiology laboratory for the diagnosis of infectious diseases
-Treatment of the most important microorganism causing infections in humans and their mechanisms of resistance
-Role of microbiology in diagnostic and antimicrobial stewardship for patient care and to fight antimicrobial resistance

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.

Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2025)	comune	6	MED/07, MED/07, MED/07

Stampa del 16/10/2026

Physiology [1209206]

Offerta didattica a.a. 2026/2027

Docenti: MARCELLO D'AMELIO

Periodo: Ciclo Annuale Unico

Obiettivi formativi
Starting from an anatomical, biochemical, biological, and physical basis, students must achieve an adequate knowledge and understanding of the main aspects of morpho-functional organization of all organs and systems of human body including the central and peripheral nervous system and the sense organs. Students have to understand the interaction between organs and systems, also with reference to the clinical relevance of their dysfunction.

Prerequisiti
Physics
Chemistry and Introductory Biochemistry
Biology;Histology and Embryology
Biochemistry

Contenuti del corso
First Term: Neurophysiology

Neurotransmitters
Synaptic transmission in the nervous system
Synaptic plasticity
Cellular physiology of skeletal and smooth muscle
Spinal Cord.
Locomotion.
Brainstem and Cranial Nerves.
Breathing Control.
Cortical Structure and Function, Motor Cortices.
Peripheral Somatosensory System + Peripheral Pain.
Somatosensory Cortex + Central Pain.
The Basal Ganglia.
The Cerebellum.
The Inner Ear (The Vestibular System) + Auditory Central Nervous System.
Language + Neurophysiology of Music and Creativity.
Smell and Taste: The Chemical Senses.
Eye and Optics + Visual Processing.
Multisensory Integration, Body Representation, Neurophysiology of Tool Use.
The Control of Gaze.
Computational Motor Control.
Functional neuroimaging (EEG, MEG, fMRI…).
Project based learning.
Peripheral Autonomic Nervous System.
Central Autonomic Network.
Sleep and Vigilance.
Emotions.
Attention and Cognition (Conscious and Unconscious Mental Processes and their disorders e.g., ADHD, Neglect, Cognition Disorders e.g., Autism).
Thought and Volition (and their Disorders e.g., Schizophrenia).
Learning and Memory.
Motivational and addictive states.

Second Term: Splanchnic physiology

- The cardiovascular system: Organization of the Cardiovascular System, Arteries and Veins, The Microcirculation, Cardiac Electrophysiology and the Electrocardiogram, The Heart as a Pump, Regulation of Arterial Pressure and Cardiac Output, Integrated Control of the Cardiovascular System.

- The Respiratory System: Organization of the Respiratory System; Mechanics of Ventilation; Acid-Base Physiology; Transport of Oxygen and Carbon Dioxide in the Blood; Gas Exchange in the Lungs; Ventilation and Perfusion of the Lungs; Control of Ventilation
- The Urinary System: Organization of the Urinary System; Glomerular Filtration and Renal Blood Flow; Transport of Sodium and Chloride; Transport of Urea,Glucose,Phosphate,Calcium and organic solutes; Urine Concentration and Dilution
- The Gastrointestinal System: Organization of the Gastrointestinal System; Gastric Function; Pancreatic and Salivary Glands; Intestinal Fluid and Electrolyte Movement; Nutrient Digestion and Absorption; Hepatobiliary Function
- The Endocrine System: Organization of Endocrine Control; Endocrine Regulation of Growth and Body Mass; The Thyroid Gland; The Adrenal Gland; The Endocrine Pancreas; The Parathyroid Glands and Vitamin D; The Reproductive System: Sexual Differentiation; The Male Reproductive System; The Female Reproductive System; Fertilization, Pregnancy and Lactation

Metodi didattici
The course objectives will be achieved through an approach that combines the traditional inductive teaching method, problem-based learning and interactive learning, which includes quizzes or open-ended problems to reinforce the topics covered.

Modalità di verifica dell'apprendimento
Assessment Criteria

The evaluation will focus on the student's ability to apply their knowledge and understanding of the main aspects of the morphological and functional organization of the nervous system and sensory organs, reworking these concepts through logical reasoning. Students will also be expected to graphically represent models and relationships between physiological parameters and to explain the interactions between functional centers, with particular reference to the clinical relevance of their dysfunctions. Emphasis will be placed on the students' communication skills and their ability to critically reformulate the concepts they have learned.

Course Assessment

The course assessment will include a qualifying test at the end of the first semester and a final examination at the end of the second semester, during the periods established in the academic calendar.

Qualifying Test

The qualifying test is optional and will cover neurophysiology topics discussed during lectures. If the test is passed successfully, neurophysiology will not be directly assessed in the final examination. However, the student is still expected to possess this knowledge and may be asked to demonstrate it through references and conceptual connections.

The qualifying test consists of a written exam divided into two consecutive parts, to be completed on the same day:

Part One (20 points):
10 multiple-choice questions. Each correct answer is worth 2 points. Incorrect or unanswered questions receive 0 points. The maximum score for this part is 20 points. A minimum of 12 points is required to proceed to the second part. Duration: 30 minutes.

Part Two (10 points):
2 open-ended questions, with a maximum of 200 words per answer. Each question is worth 5 points. The maximum score for this part is 10 points. Duration: 30 minutes.

The total score of the written test (maximum 30 points) is the sum of the scores from the two parts. A total score of less than 18 points results in failure of the qualifying test. No oral evaluation is foreseen.

The score will be communicated to students and recorded by the instructor, contributing to the final grade of the Physiology course.

Final Examination

The final examination will focus on the physiology of the organs studied during the second semester. If the student has not taken or has not passed the qualifying test, the exam will also include neurophysiology.

Assessment of organ physiology knowledge:

Students will be evaluated through:

a written exam consisting of:

a) a multiple-choice test (5 questions) on topics covered during second semester lectures;
b) applied physiology problems, including relevant clinical cases (10 problems).

Students may attempt to improve their grade with an oral exam (note: the grade may be lowered in case of poor performance).

The final grade will be the arithmetic average of the grades obtained in the neurophysiology test and the splanchnic physiology exam.

It is not possible to take the splanchnic physiology exam without having passed the neurophysiology test.

Testi di riferimento

After the lessons covering a section of the program, students will be provided with the related didactic materials.

Main textbook:

- Kandel/Schwartz/Jessell, Principles of neural science, VI edition, McGraw-Hill Education 2021.
- Boron and Boulpaep, Medical Physiology, 3th Edition. Elsevier 2016;

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2025)	comune	16	BIO/09

Stampa del 16/10/2026

Propaedeutics of Clinical Practice [1209209]

Offerta didattica a.a. 2026/2027

Docenti: PAOLO GALLO, ELIODORO FAIELLA, FILIPPO CARANNANTE

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi
The student should be able to establish a trust and collaborative relationship with the patient, to recognize their emotions and to respond correctly, even in difficult situations; the student will learn some methodologies that favor this approach. (Dublin descriptors: communication skills)
The student will have to learn to take personally a clinical history, identifying the patient's active and non-active clinical problems to subsequently record the history based on traditional criteria (e.g. family, physiological, proximate and remote medical history). (Dublin descriptors: autonomy of judgment)
The student will have to learn the main signs and symptoms for systems; learn to critically evaluate the meaning of each sign and / or symptom, connecting it with the overall framework (Dublin descriptors: autonomy of judgment).
Students will learn to recognize, interpret, and correlate diagnostic images with pathophysiological, diagnostic, and prognostic criteria. The course will cover both theoretical and practical aspects of the main imaging techniques, with particular emphasis on their clinical applications.
The student will be able to identify in a realistic context the sensitivity, specificity and predictive value of common signs and symptoms, and images for elaborating a diagnostic hypothesis.

Prerequisiti
Basic knowledge of anatomy, physiology, and general pathology.

Contenuti del corso
Programma
• General care and attitudes. Wash up and disinfection of the hands. Gloves, surgical suit and masks. Antiseptics and disinfectants. Separation of the wastage
• Analysis of the clinical information and its interpretation. Plan of investigation of the patient. Evaluation by problems as a study method. Methods of palpation of some organs. Points of sensibility. Suggestion of the diagnosis.
• General physical examination of the surgical patient and operated patient. Basic concepts for performing an objective examination.
• Pain. General aspects. Kinds of pain. Visceral pain. Pain as a symptom. Abdominal pain – physical examination. Specific characteristics of the abdominal pain.
• Alterations of the digestive and urinary function: alterations of digestive transit, basic clinical anatomy, pain in the main acute abdominal syndromes.
• The local objective examination of swelling, continuous solutions, neck and head, chest, abdomen and genitals, limbs.
• General and specific clinical semiotics of the breast
• General and specific clinical semiotics of hernias of the abdominal viscera and their complications: Inguinal, crural, umbilical, epigastric or Linea albahernia, internal hernias.
• General and specific clinical semiotics of oesophageal and gastric pathology: Gastric Ulcer, Zollinger-Ellison Syndrome. Malignant tumours. Gastroesophageal reflux.
• General and specific clinical semiotics of the duodenum and small intestine: Duodenal ulcer. Intestinal infarction, intussusception, proportions and rates, incidence, prevalence, mortality. Meckel diverticulum.
• General and specific clinical semiotics of the large intestine: Acute appendicitis, Colon diverticulosis, Haemorrhoids, Rectal prolapse, Fissures, Abscesses, Anorectal fistulas, Benign and malignant tumors.
• Clinical semiotics of digestive haemorrhages (Upper and Lower Digestive Tract)
• Clinical semiotics of peritonitis: Acute diffuse, chronic, localized peritonitis. Clinical forms of peritonitis. Subphrenic Abscesses. Pelvic peritonitis.
• General and specific clinical semiotics of intestinal occlusion: definition, etiopathogenetic classification, pathophysiology. Differential semiotics of several types of ileus.
• General and specific clinical semiotics of the liver, biliary tract and pancreas: Acute and chronic cholecystitis, common bile duct stones, jaundice of surgical interest and their classification, biliary-digestive fistulas, tumours of the biliary tract, pancreatic tumour, acute and chronic pancreatitis.
• Physical semiotics of thyroid diseases
• Wounds. Stitching material. Wounds and their characteristics. Suturing techniques. Specific attitudes. Bandaging.
1. Analysis of Clinical Information and Its Interpretation

• Integration with Imaging: Application of clinical information to guide imaging decisions, emphasizing the selection of appropriate imaging modalities based on patient symptoms and history.
• Imaging Interpretation: Fundamentals of interpreting radiographs, CT, MRI, and ultrasound images, including the identification of normal and pathological findings.
2. Imaging of Digestive and Urinary Function
• Digestive Imaging: Techniques such as barium studies, abdominal ultrasound, and CT scans for assessing alterations in digestive transit and diagnosing acute abdominal conditions.
• Urinary Imaging: Role of ultrasound, intravenous urography (IVU), and CT in evaluating urinary tract abnormalities, including the detection of stones and infections.
3. Imaging of Abdominal Wall Hernias
• Hernia Imaging Techniques: Use of ultrasound and CT scans for the diagnosis and assessment of abdominal wall hernias, including inguinal, umbilical, epigastric, and their potential complications.
4. Imaging of Oesophageal and Gastric Pathology
• Oesophageal and Gastric Imaging: Application of barium swallow and upper GI series in evaluating conditions such as gastroesophageal reflux, ulcers, and gastric tumors.
5. Imaging of Duodenal and Small Intestine Pathology
• Advanced Enterography: Use of CT and MRI enterography to assess conditions such as duodenal ulcers, intestinal infarction, and small bowel tumors.
6. Imaging of Large Intestine Pathology
• Colon Imaging: Implementation of CT colonography for diagnosing conditions such as acute appendicitis, diverticulosis, and colorectal tumors.
• Perianal Disease Imaging: Specialized use of MRI to evaluate perianal conditions, including fistulas, abscesses, and tumors.
7. Imaging of Digestive Hemorrhages
• CT Angiography: Utilization of CT angiography to localize and assess the source of gastrointestinal bleeding.
8. Imaging of Peritonitis
• Peritonitis and fluid collection assessment Imaging: Use of abdominal ultrasound and CT to diagnose peritonitis and identify complications such as abscess formation.
9. Imaging of Intestinal Occlusion
• Obstruction Imaging: Key imaging modalities such as abdominal X-ray and CT for diagnosing various types of intestinal obstruction, including mechanical and paralytic ileus.
10. Imaging of Liver, Biliary Tract, and Pancreas
• Hepatobiliary Imaging: Utilization of ultrasound, CT, and MRI to assess liver and biliary tract conditions like cholecystitis, jaundice, and tumors.
• Pancreatic Imaging: Application of CT and MRI in diagnosing pancreatic conditions such as pancreatitis and pancreatic cancer.
11. Imaging of Thyroid Diseases
• Thyroid Imaging: Techniques such as ultrasound and fine-needle aspiration (FNA) for evaluating thyroid nodules and other thyroid pathologies.

Metodi didattici

The lessons are held with different methodologies depending on the topic covered: lectures, interactive lessons, videotapes, presentation and discussion of clinical cases to apply theoretical knowledge. On the proposal and initiative of the students, ad hoc exercitations can be organized on topics of greater complexity or of particular interest. The internship takes place with the following objectives: learning to take a clinical history, and put it in writing in the form of the traditional medical history and problem oriented. Learn the use of the main terms of medical semeiotics; learn to approach patients of different ages and social and clinical conditions; learn to collect the objective signs of physical examination of the various body systems. Sessions are planned in the simulation room.

Modalità di verifica dell'apprendimento

A practical and oral examination held in the simulation room according to the principles of the Objective Structured Clinical Examination (OSCE), in which the performance of semiological manoeuvres will be assessed.

A written examination consisting of 30 multiple-choice questions on topics in medical and surgical semiotics and digital images, with four answer options for each question, only one of which is correct. At the end of the examination, the examination board will communicate the final score, based on the average between the practical/oral examination and the written test score.

Regardless of the number of students enrolled in each session, the written examination must always be carried out. The practical examination is considered passed if the student achieves a minimum score of 18/30; in any case, once the practical examination has been passed, it will not need to be repeated in subsequent examination sessions. Active participation during lectures and professional training activities may also influence the final assessment.

Testi di riferimento

- Dover AR, et al Macleod's Clinical Examination. 15th Edition 2024

- John S. P. Lumley, Anil K. D'Cruz, Jamal K. Hoballah. Hamilton Bailey's Demonstration of Physical signs in Clinical Surgery. Taylor & Francis Ltd, 19° edition
- Dioguardi N e Sanna GP. Moderni aspetti di Semeiotica medica. SEU
- Carannante F. – Compendio di Chirurgia. NDL Pub 2023
- Swartz's - Principles of Surgery
- Talley NJ, O'Connor S. Clinical examination. Elsevier Pub. 2021.
- Felson's Principles of Chest Roentgenology. Elsevier Pub. 2019
- Fundamentals of Body CT. Elsevier Pub. 2022
- Radiology Review Manual. Lippincott Williams & Wilkins Pub. 2021
- Clinical Imaging: An Atlas of Differential Diagnosis. Elsevier Pub. 2018

Risultati di apprendimento specifici

With reference to the general physical and per apparatus examination, at the end of the course the student must be able to:
- - Assume the right attitude for the correct execution of physical examination;
- - Identify and describe the somatic and general characteristics of the patient, interpreting the alterations in a pathophysiological key;
- Carry out the physical examination of the different parts of the body, describing their characteristics and interpreting the alterations in a pathophysiological key. They will also have to pass from the results of the anamnesis and physical examination to the diagnostic hypotheses with reference to test results as a guide for personal study (Dublin descriptors: applied knowledge and understanding, and the ability to learn).
Students will develop the skills to perform and interpret the main imaging techniques used in radiodiagnostics. Emphasis will be placed on the ability to correlate imaging findings with clinical pathology and effectively communicate results to other healthcare professionals. Students will also acquire practical skills in the use of imaging techniques and the management of patients undergoing these procedures.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2025)	comune	4	ING-IND/34, MED/09, MED/18

Stampa del 16/10/2026

Propaedeutics of Medicine [1209105]

Offerta didattica a.a. 2026/2027

Docenti: GIULIA LEANZA, ALESSANDRO LOPPINI, MARINA FAVA, CARLA LINTAS, FIORELLA GURRIERI

Periodo: Primo Ciclo Semestrale

Obiettivi formativi

Biology: The course of Biology aims to provide students with the functional logic of living systems, with a focus on the properties and functions of the cell as the basic unit of life. Students will learn the mechanisms that regulate cellular processes and activities and the interactions between cells; the principles that govern the diversity of biological units, in relation to their structural and functional characteristics, modes of gene expression, both within a single individual (differentiation), and longitudinally, throughout evolution. Fundamental principles of molecular biology and genetics will be covered, with emphasis on aspects important to medical students, such as the cellular and molecular basis of diseases, including tumor progression and intellectual disabilities, and the effects of drugs on cellular structure and function They will have to know the biological basis of life: from the organization of the genome to the gene expression and the biosynthesis of functional proteins. At the end of the course, students should be able to describe the structural and functional organization of the cell and the interconnection existing between gene expression and regulation, functional protein synthesis and cell's differentiation and specialization.
☐ Chemistry and Propedeutics of Biochemistry: Students must be able to describe, with adequate chemical terminology, the properties of matter, from atom to chemical bond and material composition. They should also master the concepts of oxidation-reduction, pH, acids and bases, solutions, with particular attention to energy and bioenergetics. They also have to know the structure and function of macromolecules. Student should be able to solve exercises on the electronic configuration of the elements, to be able to draw the structure of a molecule, balance a reaction, and calculate the concentration of solutions. Students should also apply the acquired concepts of general chemistry in describing the characteristics and functions of macromolecules. The student should be able to critically evaluate the characteristics of each molecule and apply the concepts learned in daily life and the functioning of a biological organism. The student must be able to express his / her knowledge of chemistry and propedeutics of biochemistry using appropriate chemical language terms. Students should deepen his / her knowledge in a critical manner. In this regard, the teacher will provide, in addition to the information on the texts and didactic material, indications for finding other material for study and exercises useful for the construction of an autonomous way.
☐ Genetics: students will achieve knowledge concerning genetic/molecular mechanisms underlying different types of genetic diseases (true Mendelian disorders and multifactorial disorders) including imprinting diseases. They will also know the principles of population genetics, cancer genetics and laboratory techniques used in medical genetics in both a research and diagnostic setting. The laboratory sessions aim to give an idea give an idea of the activities related to genetics that take place in the laboratory.
☐ Physics: The course aims to provide knowledge of the fundamentals of physics, including classical mechanics, thermodynamics, and electromagnetism, focused both on theory and practical applications. Students will develop the ability to grasp the essential aspects of physical processes, identifying main physical quantities and physical laws describing systems and observed phenomena and using coherent and descriptive mathematical models.

Prerequisiti

Propedeuticity: Propedeutics of Medicine is propedeutic for Biochemistry and Immunology and Genetics

Contenuti del corso

Biology Programme
Basic concepts of Biology: Introduction to biology and differences between cell and molecular biology. The importance of biology in Medicine and Surgery. General characteristics of living organisms and their classification. Quantities and dimensions of biological units. Levels of organizational complexity. Prokaryotic cell model and eukaryotic cell model. Recalls to the structure and function of major biological macromolecules: carbohydrates, lipids, proteins and nucleic acids. Molecular interactions in biological structures and entities.

The cell and cell organelles: Cell theory. Early observations and recognition of different cell types. Evolutionary tree of phyla and the cell types within. Endosymbiont theory. Simple aspects of mitochondrial biology (include some newer aspects such as mitochondrial sharing). Biological membranes (structure, properties and functions). Importance/challenges in connection to membrane biology. Main cytoplasmic organelles found in the eukaryotic cell: nuclear compartment (karyotheca, nuclear pores, nucleolus and nuclear lamina). Smooth and rough endoplasmic reticulum. Golgi apparatus. Lysosomes and peroxisomes. Mitochondria. Concept of cellular transport. Trafficking.

Topology of proteins. Sorting of proteins via localisation sequences and or trafficking (expanding on the concept introduced earlier). Endo/exocytosis etc. Concept of intercellular shuttling of protein or nutrients.

Genetic Information in Eukaryotes: Development of unicellular vs multicellular organisms. Complex multicellular organisms with differentiated cells. Concept of cell differentiation and in disease de-differentiation. Genes dictate cellular identity in Embryogenesis and adulthood. Eukaryotic genomes are complex (include regulatory elements, viral elements, repeat elements, transposons etc. All done more conceptually, as they will lack some of the basis). Model organisms: Introduce the major ones with examples. Yeast for genetic and metabolic studies. Flies for development. C elegans for cell death, ageing etc. Frogs also for embryogenesis. Fish increasingly for diseases as well. Mice for most human diseases. Primates (rarely) for some cognitive studies and some human disease. Humans in population studies, volunteer studies and clinical trials.

DNA replication, repair and homologous recombination: The structure and function of the DNA. Chromosomal DNA and its packaging in the chromatin fiber. Chromatin structure and function. The global structure of chromosomes. Molecular basis of hereditary information. DNA replication mechanism. The initiation and completion of DNA replication in chromosomes. DNA repair mechanisms. DNA homologous recombination.

How cells read the genome: From DNA to protein. From DNA to RNA. RNA Molecules Are Single-Stranded. Transcription Produces RNA Complementary to One Strand of DNA. RNA Polymerases Carry Out Transcription. Cells Produce Different Categories of RNA Molecules. Signals Encoded in DNA Tell RNA Polymerase Where to Start and Stop. Transcription Start and Stop Signals Are Heterogeneous in Nucleotide Sequence. Transcription Initiation in Eukaryotes Requires Many Proteins. RNA Polymerase II Requires a Set of General Transcription Factors. Polymerase II Also Requires Activator, Mediator, and Chromatin- Modifying Proteins. Transcription Elongation in Eukaryotes Requires Accessory Proteins. Transcription Creates Superhelical Tension. Transcription Elongation in Eukaryotes Is Tightly Coupled to RNA Processing. RNA Capping. RNA Splicing. Nucleotide Sequences Signal Where Splicing Occurs. RNA Splicing Is Performed by the Spliceosome. Mature Eukaryotic mRNAs Are Selectively Exported from the Nucleus. Noncoding RNAs Are Also Synthesized and Processed in the Nucleus. The Nucleolus Is a Ribosome-Producing Factory.

From RNA to proteins/ Control of gene expression and cell type differentiation. An mRNA Sequence Is Decoded in Sets of Three Nucleotides. tRNA Molecules Match Amino Acids to Codons in mRNA. tRNAs Are Covalently Modified Before They Exit from the Nucleus. Specific Enzymes Couple Each Amino Acid to Its Appropriate tRNA Molecule. Editing by tRNA Synthetases Ensures Accuracy. Amino Acids Are Added to the C-terminal End of a Growing Polypeptide Chain. The RNA Message Is Decoded in Ribosomes. Elongation Factors Drive Translation Forward and Improve Its Accuracy. Accuracy in Translation Requires an Expenditure of Free Energy. The Ribosome Is a Ribozyme. Nucleotide Sequences in mRNA Signal Where to Start Protein Synthesis. Stop Codons Mark the End of Translation. Proteins Are Made on Polyribosomes. Exposed Hydrophobic Regions Provide Critical Signals for Protein Quality Control. The Proteasome Is a Compartmentalized Protease with Sequestered Active Sites.

Signal transduction: Different classes of proteins and their function in cell biology: structural proteins, receptors, enzymes. Cell signaling and major signal transduction pathways. Heterotrimeric G-protein-coupled receptors, protein-tyrosine kinase receptors, and receptors for steroid hormones. First messengers and second messengers. Wnt and other systems. Cell-cell interactions and communication.

Molecular mechanisms of cell survival, cell proliferation and cell death: mitosis, meiosis, apoptosis, necrosis and autophagy.

Molecular bases of cancer. General characteristics of cancer cells. Molecular mechanisms underlying tumorigenesis. Oncosuppressor and oncogenic genes. Driver and passenger genes. Mutator phenotype. Molecularly targeted therapies.
Chemistry and Propedeutics of Biochemistry Programme
Inorganic chemistry: The atomic structure: nuclei and electrons. Electronic configuration: electronegativity. Covalent bond types on the basis of the electronegativity of the atoms involved. Molecules: reactivity and molecular chemical bonding. The spatial distribution of electrons and the shape of molecules. Acidic and basic oxides. Acid-basic theories. Salts. Fundamentals of chemical kinetics, the meaning of activation energy. Chemical equilibrium: acidic and basic solutions. The fundamentals of thermochemistry and thermodynamics. Chemical reactions and energy exchanges.
Organic Chemistry: Structure and chemical bonds in organic molecules. Reactions types: addition, elimination, and substitution. Reaction mechanisms: radicalic and polar. Reagent types: nucleophiles, electrophiles, and radicals. Functional groups: nomenclature, physical properties, and chemical reactivity of biological interest: aliphatic, olefinic, and aromatic hydrocarbons. Functional groups: alcohols, phenols, thiols, amines, carbonylic compounds: aldehydes, ketones, carboxylic acids, and derivatives.

Preparatory biochemistry: the chemistry of biological system molecules. Carbohydrates: monosaccharides, oligosaccharides, and polysaccharides. Lipids: fatty acids, lipids, complex lipids and steroids. Proteins: aminoacids and peptide bonds. Peptides. Nucleic Acids: purines, pyrimidines, nucleotides, and nucleosides; the phosphodiesteric bond. DNA and RNA structures and functions.

Genetics Programme

• Basics concepts of genetics: from Mendelian inheritance to complex diseases
• Mendelian diseases and associated inheritance models
• Dynamic mutations and their associated diseases
• Human Genome Organization
• Human chromosomes, karyotype, chromosomal anomalies of number and structure
• Multifactorial diseases and the concepts of polygenic risk score for diseases
• Epigenetics and imprinting diseases
– Linkage disequilibrium and haplotype maps
• Fundamentals of molecular genetics techniques: array CGH, MLPA, FISH, exome/target/whole genome sequencing (NGS), Sanger sequencing
• Principles of genetic testing in medical practice
• Genetic Load in medicine (genetic tests – genetic counselling- clinical genetics)
• Bioinformatic tools in medical genetics
• Population Genetics and pedigree analysis
• Basic concepts of cancer genetics (oncogenes, caretakers and gatekeepers genes)
• Practical activities: Attendance in medical genetics laboratory

Physics Programme

- Introduction. Physical quantities, dimensional analysis, and systems of units. Vector and scalar quantities. Vector calculus.
- Kinematics in one and two dimensions. Displacement, velocity, and acceleration. Motion at constant acceleration. Free fall. Projectile motion. Uniform circular motion. Centripetal acceleration. Harmonic motion.
- Dynamics of a material particle. Principle of inertia. Mass and force. Newton's second and third laws. Inertial and non-inertial reference frames. Weight force. Law of universal gravitation. Constraints and contact forces. Tension in a string. Elastic force. Friction forces.
- Work and kinetic energy. Power. Work-energy theorem. Conservative forces and potential energy. Conservation of mechanical energy.
- Linear momentum and its relation to force. Impulse of a force. Conservation of momentum. One-dimensional collisions.
- Center of mass of a system of particles. Rigid body and translational dynamics of rigid bodies. Rotational motion and angular quantities. Torque. Rotational dynamics. Moment of inertia. Static equilibrium.
- Fluids. Density and pressure. Hydrostatics. Stevino's law (hydrostatic law). Pascal's principle. Archimedes' principle. Fluid dynamics: non-viscous fluids and Bernoulli's equation. Torricelli's theorem. Viscous fluids and Poiseuille's law. Surface tension. Capillarity. Laplace's law.
- Mechanical waves. Harmonic oscillator. Frequency, period, angular frequency, and wavelength. Wave speed. Wave equation for simple harmonic waves. Wave vector. Transverse and longitudinal waves. Intensity, energy, and power. Superposition and interference. Standing waves. Sound waves. Propagation of sound. Sound intensity. Hearing threshold and limits of human audibility. Doppler effect.
- Thermodynamic system. Thermodynamic variables (pressure, volume, temperature). Thermodynamic state. State functions. Temperature and measurement scales. Ideal gas law. Real gases and critical temperature. Internal energy. Kinetic theory of gases. Thermal equilibrium and the zeroth law of thermodynamics. Heat as energy transfer. Specific heat. Latent heat. Heat capacity. Calorimetry. Phase changes. Heat transfer mechanisms.
- First law of thermodynamics. Thermodynamic processes. Reversible and irreversible transformations. Standard processes in ideal gases: isobaric, isothermal, isochoric, adiabatic. Second law of thermodynamics. Thermodynamic cycles. Heat engines and the Carnot cycle. Efficiency. Entropy, macroscopic implications and statistical interpretation. Entropy and thermodynamic processes.
- Electrostatics. Electrified bodies and their interactions. Electric charge. Conductors and insulators. Coulomb's law. Electric field generated by discrete charge distributions. Motion of a charge in a uniform field. Gauss's law.
- Electrostatic potential energy and electric potential. Potential difference. Energy conservation for moving charges. Electric dipole and dipole moment. Electrostatics in matter. Electrostatic induction. Insulators and polarization. Conductors.
- Electromotive force. Electric currents and direct current circuits. Ohm's laws. Kirchhoff's laws. Joule effect.
- Capacitance and capacitors. Concept of capacitance. Capacitance of a parallel-plate capacitor and effect of a dielectric. Energy stored in a charged capacitor. Capacitors in series and parallel.
- Magnetostatics. Magnetic field vector. Current–current interaction. Lorentz force. Motion of charges in a uniform magnetic field. Force on a current-carrying wire. Biot–Savart law. Magnetic field for notable systems (e.g., infinite wire, loop, solenoid).
- Electromagnetic induction. Lenz's law. Neumann–Faraday law. Induced currents and their direction.
- Electromagnetic radiation. Wave nature of electromagnetic waves as a combination of oscillating electric and magnetic fields perpendicular to each other; fundamental characteristics such as wavelength, frequency, propagation speed in vacuum and in materials, amplitude, and intensity. Relationship between wave intensity and energy transported. Main units of measurement. Electromagnetic spectrum. Division into regions (radio waves, microwaves, infrared, visible light, ultraviolet, X-rays, gamma rays), in order of increasing frequency and decreasing wavelength.
- Energy quantization. Photon concept as a quantum of energy associated with radiation; relationship between photon energy and frequency. Interpretation of the photoelectric effect and implications for the quantum nature of radiation. Absorption of electromagnetic radiation.

- Radioactivity and radioactive decay. Definition of unstable nucleus and radioactive isotopes. Main types of decay (alpha, beta, gamma) and associated nuclear transformations.
- Ionizing and non-ionizing radiation. Distinction based on the energy carried relative to atomic ionization energy. Examples of non-ionizing radiation (radio waves, microwaves, infrared) and ionizing radiation (X-rays, gamma rays).
- Optics. Laws of reflection and refraction, refractive index, dispersion. Properties of thin lenses: converging and diverging lenses, formation of real and virtual images.

Metodi didattici

The aims of the course will be achieved through a combined approach between: traditional inductive teaching method (lectures), practical activities, problem-based learning (PBL) or clinical-based learning (CBL). Several didactic activities will be combined in the same week. Each week will be oriented to a specific theme and will begin with an introduction to the topic, through a plenary session of frontal teaching during which biological problems or targeted clinical cases will be proposed to the students. . Teachers and tutors will always be available to students, to guide the PBL/CBL and practical activities, and for tutorials and clarifications.

Modalità di verifica dell'apprendimento

The final examination will take place at the end of the course, during the examination sessions scheduled in the academic calendar.

The examination will consist of an integrated oral exam covering all the subjects included in the Propedeutics of Medicine course. During the exam, students will be examined in rotation by the lecturers of the different disciplines and may be asked both oral questions and short exercises to be completed upon the lecturer's request.

In particular, for Genetics, Physics, and Chemistry and Propaedeutics to Biochemistry, the examination may include short applied exercises aimed at assessing the students' understanding and ability to apply the concepts covered during the course.

The final grade will be expressed out of thirty, up to a maximum of 30 points. The final grade will be determined by the weighted average of the grades obtained in the individual disciplines, calculated according to the number of credits assigned to each subject. The assessment will take into account the student's overall preparation in the different disciplines included in the integrated course.

The examination will be assessed according to the following criteria:

0–17: Serious gaps and/or inaccuracies in the knowledge and understanding of the topics; limited ability to analyse and synthesise; frequent generalisations.
18–20: Barely sufficient knowledge and understanding of the topics, with possible inaccuracies; sufficient ability to analyse and synthesise, and sufficient independent judgement.
21–23: Adequate knowledge and understanding of the topics; correct ability to analyse and synthesise, with coherent logical arguments.
24–26: Fairly good knowledge and understanding of the topics; good analytical and synthesis skills, with rigorously expressed arguments.
27–29: Complete knowledge and understanding of the topics; very good analytical and synthesis skills; good capacity for independent judgement.
30–30L: Excellent level of knowledge and understanding of the topics; outstanding analytical and synthesis skills and independent judgement; arguments expressed in a brilliant manner.

Testi di riferimento

BIOLOGY
Suggested Textbooks: MOLECULAR BIOLOGY OF THE CELL, 6TH EDITION, ALBERTS
Alternative book: ESSENTIAL CELL BIOLOGY, 6TH EDITION, ALBERTS

CHEMISTRY AND PROPEDEUTICS OF BIOCHEMISTRY
Suggested Textbooks:
Chemistry by Zumdahl SS and Zumdahl SA, Brooks/Cole eds.
Organic chemistry, a brief course by Atkins R.C. and Carey F.A., McGraw- Hill International Edition.

GENETICS
Suggested textbooks:
Medical Genetics - Jorde Carey Bamshad, 6th edition, Elsevier
Medical Genetics - G. Bradley Schaefer, James N. Thompson Jr. Mc Graw Hill
Other materials: for the laboratory sessions protocols and slides uploaded on e-learning.

PHYSICS
Suggested Textbook: Douglas C. Giancoli, "Physics for Scientists & Engineers with Modern Physics" Pearson

New International Edition (English Edition).

Risultati di apprendimento specifici

EXPECTED RESULTS:
☐ Biology: At the end of the course, students should be able to achieve an adequate knowledge of cell structure, correlating the morphological organization of the cell with the fundamental mechanisms of molecular biology and understanding the importance of cell differentiation and specialization in the morpho-functional organization of tissues, in development of the organism and in the physiological interactions between cells.
☐ Chemistry and Propedeutics of Biochemistry: The course is finalized to give students fundamental notions of chemistry essential to deal properly the study of biological, anatomical, physiological and biochemical aspects of movement and of physical exercise adaptation. Chemical concepts are proposed in a logical order, starting from atoms to molecules, and going on with solutions, acids and bases and redox reactions, with several links to everyday experience. Basic information of organic chemistry aimed to comprehension of macromolecule structures and functions are given. Comprehension and knowledge of chemical- physical and molecular mechanisms that are at the base of vital processes. Knowledge of chemical compounds involved in biological processes and comprehension of some chemical reactions active during vital processes.
☐ Genetics: students will acquire knowledge about the human genome organization, genetic mechanisms underlying Mendelian disorders and multifactorial disorders, fundamentals of population genetics and molecular genetics techniques and bioinformatics tools commonly used in the diagnosis of genetic diseases. The practical sessions will allow students to get a taste of some laboratory activities that routinely take place in a medical genetic setting in both a research and diagnostic context.
☐ Physics: Students will acquire adequate knowledge of physical laws and related mathematical aspects of classical physics, including Kinematics and Newtonian dynamics, Fluids, Calorimetry and thermodynamics, and Electromagnetism. Students will learn methodological-operational aspects of physics to interpret and describe medical problems.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2026)	comune	20	BIOS-07/A, BIOS-10/A, MEDS-01/A, PHYS-06/A, MEDS-01/A, BIOS-07/A

Stampa del 16/10/2026

Structure and basic functioning [1209104]

Offerta didattica a.a. 2026/2027

Docenti: MARIA ZINGARIELLO, MARCO D'ALONZO

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi
By the end of the course, students must acquire a thorough knowledge of the morphological and ultrastructural organization of cells, tissues, and organs (Histology), embryonic development (Embryology), and the fundamental mechanisms of cellular and organ physiological processes (Physiology).

Prerequisiti
To fully understand the content of this integrated course, students must possess foundational knowledge in:
Cell Biology;
Chemistry and Medical Biochemistry;
English Language

Contenuti del corso
Histology and Embryology:
Cytology: General organization, shapes and sizes of different cell subtypes. The concept of cells specialization and differentiation. Stem cells and pluripotent cells. Biological membranes. Membrane specializations. Cytoplasmic matrix. Cytoplasmic membrane and cytoplasmic specializations. The nucleus and the nucleolus. Chromatin and methodologies for chromatin visualization. Organization and function of the cytoskeleton. Cell junctions and mechanisms of intercellular communications.
- Epithelial tissues: types of epithelial cells, classification of epithelia. Lining epithelia. The skin. The Endothelia. Glandular epithelia: exocrine and endocrine glands: secretion modalities, neuro-endocrine correlations.
- Connective tissues: classification, structural components: protein intracellular matrix and cellular components. Specialized connective tissues: cartilaginous tissue; Bone tissue; blood and Immune tissue: circulating blood cells, serum and plasma, biological mechanisms of coagulation. Hematopoiesis: precursors of blood cells and their maturation and differentiation. Adipose tissues and mechanisms of thermogenesis.
- Muscular tissue: Skeletal muscle structure: endomysium, perimysium. Skeletal muscular cells: sarcomeres and myofibrils, actine/myosin interactions. Sarcolemma, sarcoplasmic reticulum. Extra-myofibrillar cytoskeletal proteins. Mechanism of muscular contraction. Neuromuscular junction. Muscular stems cells. Cardiac muscular tissue: myocardial cells. Gap junctions and inter-cellular communications. Mechanisms of myocardial contraction. Conduction myocardial tissue. Smooth muscular tissue.
- Nervous tissue: white matter and grey matter. The Neuron: size, shape and morphology of different neuronal subtypes. The neuronal cytoskeleton: axons, dendrites and axonal transport. Neuronal membrane and its specializations. Principal classes of neurotransmitters ad their receptors. The synapses: morphological classification and ultrastructure. The glial cells: astrocytes, oligodendrocytes, Schwann cells. Formation and constitution of myelin sheets. Microglia and mesenchymal cells of the central nervous system. Neuronal stem cells and neuronal precursors. Ependymal cells. The peripheral nerve: axonal organization, histological classification of neuronal fibres. Myelin sheets, endonervic and perinervic sheets. Unmyelinated peripheral fibres.
Embryology: Life cycle stages. Gametogenesis. Development of the gonads. Spermatogenesis. Oogenesis. Fertilization. Embryo implantation. Segmentation. Gastrulation. Cellular and molecular mechanisms of cells differentiation. Germ layers and derivatives. Endoderm and formation of primitive intestine. Mesoderm and mesenchima. Notochord formation. Ectoderm and neuro-ectoderm, neuronal crests. Somites. General development of the fetus. Embryonic appendages.

Physiology :
Cellular Homeostasis: Concept of internal environment; negative and positive feedback loops.Membrane Transport and Potentials: Passive diffusion, facilitated diffusion, and active transport (\(Na^{+}/K^{+}\) ATPase pump); resting membrane potential and Gibbs-Donnan equilibrium.Excitable Membranes and Action Potential: Voltage-gated ion channels; phases of the action potential (depolarization, repolarization, hyperpolarization); propagation of the nerve impulse and refractory periods.Synaptic Transmission: Electrical vs. chemical synapses; neurotransmitters and receptors; excitatory and inhibitory postsynaptic potentials (EPSPs/IPSPs).Physiology of Muscle Contraction: Excitation-contraction coupling; molecular basis of the sliding filament mechanism; role of calcium, troponin, and tropomyosin.

Metodi didattici

Course objectives will be achieved through a combined approach encompassing traditional deductive teaching methods, innovative educational strategies, problem-based learning, and interactive learning, which includes practical activities using anatomical specimens and microscopic slides.

Modalità di verifica dell'apprendimento

The acquisition of knowledge and skills will be assessed through a final examination held at the end of the course during the official sessions scheduled in the academic calendar.The final examination consists of separate written and oral assessments for each module, followed by a final integrated oral interview. Particular emphasis is placed on students' communication skills and their ability to critically re-evaluate and articulate the concepts learned.Histology and EmbryologyThe learning assessment will consist of an oral examination focusing on Histology, which includes a microscope-based practical test to evaluate the student's ability to recognize and analyze histological specimens. This practical/oral phase will be preceded by a written test consisting of two open-ended questions on Cytology and two open-ended questions on Embryology.The final grade for Histology and Embryology will be calculated as the average of the scores obtained in the written test and the oral examination. The module is considered passed with a minimum grade of 18/30.PhysiologyThe learning assessment will consist of a written test and an oral examination in Physiology.The final grade for Physiology will be determined by adding the score of the written test to the score of the oral examination. The module is considered passed with a minimum score of 18/30.Final Course GradeThe final grade for the entire integrated course will be awarded based on the weighted average of the grades from the two individual modules, along with the student's overall performance during the integrated oral interview. This final score is expressed out of 30 and can reach a maximum of 30 Cum Laude (with Honors)

Testi di riferimento

Following each lecture, students will be provided with the relevant learning materials.

Embriologia e sviluppo
- Keith Moore and T.V.N Persaud et al. The Developing Human. Clinically oriented Embryology. 11th revisited edition. Elsevier.

Histology and Embryology
- Wojciech Pawlina. Histology: A Text and Atlas, International Edition: With Correlated Cell and Molecular Biology. 8th Edition.

- Lippincott Williams & Wilkins
Barbara Young et al. Weather: Histology and Microscopic Anatomy. 6th edition. Elsevier.

- James Lowe and Peter Anderson. Stevens and Lowe’s Human Histology. 5th edition. Elsevier

- Larsen’s HUMAN EMBRYOLOGY Elsevier.

- Keith L.Moore,T.V.N Persaud et al. BEFORE WE ARE BORN Elsevier.

Guyton and Hall Textbook of Medical Physiology:John E. Hall, Michael E. Hall; Elsevier.

Berne & Levy Physiology:Bruce M. Koeppen, Bruce A. Stanton; Elsevier.

Risultati di apprendimento specifici

Students must acquire a solid knowledge of the general organization of the human body, encompassing macroscopic, radiological, and clinical anatomy, as well as histological and developmental aspects. These are aimed at understanding cellular and tissue differentiation and specialization as a foundation for comprehending physiology and pathology, alongside embryological development as a basis for understanding histogenesis, anatomical organization, and the relationships between organs.More specifically, by the end of the course, students should be able to:understand the processes of histogenesis and embryogenesis;understand cellular differentiation and recognize different cell types, grasping the relationship between structure and function;understand the organization, structure, and function of different tissues;recognize and analyze histological specimens under the microscope and understand the physical principles of light microscopy;quantify and explain the mechanisms driving resting membrane potential and the generation/propagation of an action potential in excitable tissues;describe the molecular sequence of events in excitation-contraction coupling within skeletal and smooth muscle fibers;differentiate between electrical and chemical synapses, illustrating the mechanisms of neurotransmitter release and postsynaptic receptor activation.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2026)	comune	8	BIOS-06/A, BIOS-13/A, BIOS-13/A, BIOS-13/A

Stampa del 16/10/2026

TE [12092E1]

Offerta didattica a.a. 2026/2027

Docenti:

Periodo: Ciclo Annuale Unico

Syllabus non pubblicato dal Docente.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2025)	comune	1	NN

Stampa del 16/10/2026

Bioethics and Medical Humanities [1204311]

Offerta didattica a.a. 2026/2027

Docenti: FRANCESCO DE MICCO, FRANCESCA FIORI

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
The course aims to provide students with the knowledge and skills (a) to understand the main deontological issues of the medical profession (general duties of the medical doctor, relations with the citizen, relations between patient and physician, relations with other healthcare workers); (b) to develop the communication skills needed to conduct an effective medical interview, manage emotions and support effective cross-cultural communication; (c) to explore the role of narrative in clinical practice, using literary, autobiographical, and visual texts to enhance empathy, ethical awareness, and reflective capacity in the doctor–patient relationship

Prerequisiti
According to the Study Manifesto, there is no propaedeuticity for this Integrated Course.

Contenuti del corso
Medical Ethics
- Deontology and Code of Ethics
- The medical profession
- The Professional Order
- Freedom and independence of the profession
- Professional secrecy and the protection of confidentiality
- Emergency services
- Resource Utilization
- Patient safety and clinical risk management
- Relations with the citizen in specific care contexts
- Respect for the dignity of the patient in a relationship of trust
- Informing the patient and obtaining consent to the medical act
- Issues at the beginning of human life
- Issues at the end of human life
- Experimentation
- Intra- and inter-professional relations
- Relations with public and private healthcare facilities
- Empowering and aesthetic medicine
- Informatisation and healthcare innovation

Communication Skills
- Introduction to complex communication challenges in clinical contexts
- Breaking bad news (SPIKES protocol)
- Managing patient emotions and emotional contagion
- Communicating with aggressive, reluctant, or non-adherent patients
- Strategies for managing interpersonal conflict and difficult interactions
- Fundamentals of risk communication: principles and real-world applications
- Communicating uncertainty and probabilistic information to patients
- Team communication and handover strategies (e.g., SBAR technique)
- Empathic communication in palliative and end-of-life care
- Practical integration of communication skills into clinical reasoning

Narrative, Art and Medicine
- What is narrative medicine? (Charon) – Introduction to narrative competence, empathy, and narrative humility
- The subjective experience of illness (Kleinman) – Understanding illness vs. disease, and the patient's perspective
- Narrative structure and close reading – Tools for analyzing clinical texts and patient stories
- Graphic medicine and visual storytelling – Exploring comics and visual metaphors of illness
- Intercultural narratives – Listening across cultures: migration, language, and representation
- The language of pain – Metaphors, silence, and expression in somatic experience

- Film and medical ethics narratives – Case study analysis using selected film clips
- Reflective and autobiographical writing – Writing the self and professional identity formation
- The physician as witness – Testimony, trauma narratives, and moral responsibility
- Final reflections – Student-led analyses and integration of narrative tools

Metodi didattici

Medical Ethics
- Lectures, case analyses, reflective learning

Communication Skills
- Lectures, Advanced role-playing with feedback. peer observation and debriefing, video observation and discussion.
-

Narrative, Art and Medicine
- Interactive lectures and seminars, Close reading sessions, Film and media analysis, Reflective writing workshops, Group discussion and storytelling practice.

Modalità di verifica dell'apprendimento

Medical Ethics
- Written examination aimed at testing the actual degree of learning, the ability to critically rework the acquired knowledge and present it in a comprehensible manner, the ability to identify the elements characterising the course topics.
- 16 multiple-choice questions
- Each correct answer counting for 2 points; either incorrect answer or answer not given count for 0 points
- The minimum grade to pass written exam is 18 (9 correct multiple-choice questions); the maximum grade is 32 (16 correct multiple-choice questions), which corresponds to 30 cum laude.

Communication Skills
- Individual Role-Play (10 points): Students will participate in a simulated clinical encounter involving complex communication scenarios (e.g., delivering bad news, managing emotions, risk communication). Performance will be evaluated using a structured checklist focusing on clarity, emotional management, risk communication, empathy, and adaptability.
- Oral Examination (20 points): A follow-up oral interview will assess students' understanding of communication strategies, their ability to critically reflect on their practice, and their grasp of theoretical foundations.

Narrative, Art and Medicine
- Written Exam (10 points): The exam includes a short narrative text followed by a set of structured questions. Students will be asked to analyze narrative elements (e.g., voice, structure, metaphors) and reflect on the ethical, emotional, and relational dimensions of the story, connecting them to clinical practice.
- Discussion of the Written Exam (20 points): After the written exam, students will engage in a brief individual discussion to further elaborate on their analysis, articulate their interpretative choices, and reflect on the relevance of narrative competence in medicine.

The final examination mark is expressed in thirtieths (minimum mark 18/30, maximum attainable mark 30/30 with distinction), and is the result of the weighted average of the marks obtained for each module.

Testi di riferimento

Medical Ethics
- Slides and material produced by the lecturer will be uploaded onto the e-learning platform.
- Laura Palazzani. Bioethics and Biolaw: theories and questions. G. Giappichelli Editore, Torino, 2018

Communication Skills:
The teaching material (downloadable from the e-learning platform) will be provided approximately two days before each class.
- Baile WF et al. SPIKES Protocol for Delivering Bad News
- Silverman, Kurtz, Draper, Skills for Communicating with Patients, Radcliffe (Ch. 3–7, from the 3rd edition)
- Gawande, A. Being Mortal: Medicine and What Matters in the End (selected chapters: Chapter 2 – Things Fall Apart; Chapter 4 – Assistance; Chapter 6 – Letting Go; Chapter 8 – Courage Ed. 2014)
- Ha, JF, Longnecker, N. Doctor-Patient Communication: A Review (Ochsner Journal, 2010)
- FDA, U.S. Department of Health and Human Services: Communicating Risks and Benefits: An Evidence-Based User's Guide (selected chapters: 3, 4, 5, 6, 8)

Narrative, Art and Medicine
- The teaching material (downloadable from the e-learning platform) will be provided approximately two days before each class.
- Charon R., Narrative Medicine: Honoring the Stories of Illness (Introduction, and chapters 1, 2, 4, 6)
- Brian Fies Mom's Cancer
- Kleinman A., The Illness Narratives (The Illness Narratives: Suffering, Healing, and the Human Condition (selected

excerpts: Preface, Ch. 1, 2, 5)
- Frank, Arthur W. – The Wounded Storyteller: Body, Illness, and Ethics (Ch 1, 2, 3)
- Film:
• Wit – Mike Nichols (2001)
• The Doctor – Randa Haines (1991)

Risultati di apprendimento specifici

Medical Ethics
- Knowledge and Understanding
To know and understand the deontological principles that characterise the professional autonomy and responsibility of the physician.
- Applied Knowledge and Understanding
Deciding, planning and implementing effective and safe care interventions that comply with quality standards and are based on scientific evidence, respecting legal and ethical responsibilities, with a personalised and integrated approach that considers individual and community needs, thus improving the health status and general well-being of the people involved.
- Autonomy of Judgment
Use critical thinking to understand the phenomena that characterise the reality of care and deontological reflection.
- Communication Skills
Presenting and discussing one's decisions with colleagues and other professionals, even in situations of moral distress, in order to ensure transparency, accountability and enrich one's point of view, contributing to a collaborative and understanding working environment.
- Learning Ability
Deal autonomously and critically with the study of deontology for the acquisition of new knowledge and understanding of new phenomena.

Communication Skills:
- Knowledge and Understanding
Understanding of advanced clinical communication models.
- Applied Knowledge and Understanding
Conduct difficult conversations: bad news, emotions, conflicts, risk communication.
- Autonomy of Judgment
Adapt communication style to the complexity of clinical contexts and uncertainty.
- Communication Skills
Use emotional regulation strategies, assertive communication, and explain clinical risks clearly.
- Learning Ability
Use critical thinking to analyze clinical cases and receive constructive feedback.

Narrative, Art and Medicine:
- Knowledge and Understanding
Demonstrate understanding of key concepts in narrative medicine and the role of storytelling in clinical practice.
Recognize the ethical and emotional dimensions of illness as represented in narrative forms.
- Applied Knowledge and Understanding
Apply narrative techniques (close reading, reflective writing) to analyze patient stories and clinical cases.
Integrate narrative approaches into clinical reasoning and communication with patients.
- Autonomy of Judgements
Critically assess the role of narrative in shaping medical knowledge and decision-making.
Reflect on personal biases and emotional responses to illness narratives.
- Communication Skills
Communicate effectively in oral and written forms, using appropriate narrative and analytical language.
Practice empathetic listening and patient-centered dialogue through role-play and discussion.
- Learning Ability:
Develop autonomy in learning by engaging with interdisciplinary materials.
Reflect on personal and professional growth through journaling and self-assessment.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	6	M-PSI/05, MED/43, MED/43

Stampa del 16/10/2026

CARDIOVASCULAR EMERGENCY [1204503]

Offerta didattica a.a. 2026/2027

Docenti: NUNZIO MONTELIONE, ELISABETTA RICOTTINI, RITA CATALDO, FRANCESCO STILO

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi
The aim of the integrated course is to provide the student with the basis for an integrated knowledge of Cardiovascular and Medical pathologies and of anaesthetic and resuscitation techniques in an emergency setting, starting from genetic and non-genetic risk factors, from clinical presentation and diagnostic procedures, up to the therapeutic available strategies (pharmacological, surgical and endovascular, as well as resuscitation techniques and general and loco-regional anaesthesia) and the predictive and prognostic factors of the efficacy of the treatments, as well as the management of the patient in emergency-urgency setting. To provide the basis for understanding the methods and principles of therapy to be implemented in the specific pathologies of critically ill patients in emergency medicine. To make known the causes of alteration of the vital parameters of the most important organs and systems, making the correlation between physiology, pathology and diagnostic-therapeutic intervention in emergency and urgency. Provide the basis for understanding the principles of anaesthesiology. In particular, the course aims to provide students with an integrated and multidisciplinary vision in the approach to the Cardiovascular patient and the critically ill patient.

Prerequisiti
According to the Regulations of the Degree Program, no prerequisites are envisaged.

Contenuti del corso
Programme
The program will be divided into lectures (on specific topics of Cardiovascular Surgery, Cardiological Emergencies, Intensive and Resuscitative Therapy) and innovative teaching: flipped classroom, Lecturio, JoVe.

The lessons will also be enriched by the presentation of clinical cases and during these lessons anonymous learning tests will be performed through real-time questionnaires carried out in the classroom (Mentimeter)

For each lesson the following aspects will be addressed:
1. Risk factors predisposing to cardiovascular and respiratory diseases
2. Clinical presentation of cardiovascular diseases and states of emergency also required resuscitative therapy
3. Main diagnostic procedures in urgent setting
4. How to interpret the radiological, biochemical investigations and electrophysiological and blood gas analytical findings specific for each pathology
5. Main predictive and prognostic factors of Cardiovascular pathology
6. Principles of treatment and main guidelines for daily clinical practice
7. Principles of an integrated approach in Cardiovascular, Respiratory and Multiorgan failure
8. New frontiers in the treatment of Cardiovascular therapies: minimally invasive and biological therapy
9. Interpretation of clinical trials and principles of clinical trial designs

ANESTHESIOLOGY, RESUSCITATION AND PAIN THERAPY
EDUCATIONAL PROGRAM –

BLSD –
CPR Basics for Adults
Overview
Learning Objectives
Understanding the ABCDs of CPR
Chest Compressions
Overview
Learning Objectives
The Importance of Compressions
Chest Compression Technique
Chest Recoil
Compression Rate
Opening the Airway and Giving Breaths

Overview
Learning Objectives
Rescuer Position
Performing the Head Tilt-Chin Lift
Mouth-to-Mouth Breathing
Mouth-to-Barrier Device Breathing
Mouth-to-Pocket Mask
Ambu device
Compression-Ventilation Ratio
Rescuer Adult CPR Sequence
Overview
Learning Objectives
Putting It All Together
Positioning the Victim
Step 1: Assessment
Step 2: Activate Emergency Response System and Get an AED
Step 3: Open Airway and Check Breathing
Step 4: Give 2 Breaths
Step 5: Pulse Check
Locating the Carotid Artery Pulse
Step 6: Begin Cycles of 30 Chest Compressions and 2 Breaths
Review Questions
1-Rescuer Adult CPR Practice Sheet
AED and the Use in Special Situations
CPR for Children (1 Year of Age to Puberty)
Automated External Defibrillator
CPR for Infants
Relief of Choking

ACLS
Respiratory Arrest Case
Management of Respiratory Arrest
Arrest Algorithm

VF/Pulseless VT Case
Managing VF/Pulseless VT: The Cardiac Arrest Algorithm
Application of the Cardiac Arrest Algorithm: FV/TV Pathway

Routes of Access for Drugs
Vasopressors
Antiarrhythmic Agents

Pulseless Electrical Activity Case
Description of PEA
Managing PEA: The Cardiac Arrest Algorithm
Managing PEA: Diagnosing and Treating Underlying Causes
Asystole Case
Approach to systole
Managing Asystole
I and T causes
Immediate Post-Cardiac Arrest Care
Application of the Immediate Post-Cardiac Arrest Care Algorithm
+ RECAP
Clinical cases

EMERGENCY CARDIOLOGY
Emergency Medicine Approach to the Patient with Chest Pain
Acute coronary syndromes
Acute myocardial infarction with ST segment elevation and Mechanical Complications of Heart Attack
Acute myocardial infarction with no-ST segment elevation
Myocarditis, Pericarditis, Pericardial Effusion and cardiac tamponade
Arterial hypertensive emergencies
Pulmonary Embolism
Endocarditis - Mitral and aortic valve diseases, including indications to surgical and percutaneous treatment
Arrhythmias and Sinus Disease: AV conduction disorders, indications to pacemaker, implantable cardioverter defibrillator and resynchronization therapy
Syncope
Acute pulmonary edema

Cardiogenic shock and intra-aortic balloon pump Cardiac arrest – Sudden death Mechanical ventricular assistance

Lessons' Calendar
1. Emergency Medicine Approach to the Patient with Chest Pain - Acute myocardial infarction with ST segment elevation and Mechanical Complications of Heart Attack
2. Acute myocardial infarction with no-ST segment elevation
3. Clinical cases
4. Myocarditis, Pericarditis, Pericardial Effusion and cardiac tamponade
5. Arterial hypertensive emergencies
6. Pulmonary Embolism
7. Endocarditis - Mitral and aortic valve diseases, including indications to surgical and percutaneous treatment
8. Arrhythmias and Sinus Disease: AV conduction disorders, indications to pacemaker, implantable cardioverter defibrillator and resynchronization therapy
9. Clinical Cases
10. Syncope
11. Acute pulmonary edema
12. Cardiogenic shock and intra-aortic balloon pump Cardiac arrest – Sudden death Mechanical ventricular assistance
13. Clinical Cases

VASCULAR SURGERY
Acute limb ischemia and chronic obstructive arteriopathies of the limbs (including diabetic arteriopathy and foot infection, Buerger's disease)
Acute and chronic cerebro-vascular insufficiency (including Subclavian Steal Syndrome)
Acute aortic syndrome and aortic dissections (Type A and B)
Aortic arch and thoraco-abdominal aortic aneurysm in urgent setting
Ruptured abdominal aortic aneurysm (rAAA) and Abdominal compartment syndrome (ACS)
Vascular trauma (including vascular access complication)
Blunt thoracic aortic injury (BTAI) and chest trauma
Acute and chronic celiac-mesenteric insufficiency
Venous thromboembolic disease and pulmonary embolism
Vascular Graft infection

Metodi didattici
The course contents will be delivered by integrating the different topics taught using lectures, problem-based and case-based learning, and interactive sessions with related instrumental documentation (ecg, echocardiogram, ultrasonography, CT-scan, airway control, fluid control, intensive care monitoring, Seldinger technique for a total of 62,5 hours). Afterward, clinical practice sessions will start in the Polyclinic, at the Cardiology Outpatient Clinics, and the Departments of Cardiology, Vascular Surgery and Anaesthesia and Resuscitation. Internship will last 5 CFU and will aim to provide the student with a general framework on cardiovascular medical and/or surgical and intensive care diseases and provide the practical skills covered by the clinical skills (see above). The internship involves a division into groups, students will be followed by appointed Tutors who will explain the clinical and instrumental manoeuvres and will follow the students during their execution. Students will be required to participate in discussions actively and join the multidisciplinary examination of clinical cases. Simulation sessions will be integral part of the course

Modalità di verifica dell'apprendimento
Practical test evaluation (clinical skills), written exam and optional oral exam.

The exam consists of a written and an optional oral test. The preparation acquired during the course will be assessed by administering a test, with equivalent questions based on the teaching modules. Within the test there will be questions of Cardiovascular pathophysiology and critical settings; there will be examples of clinical cases such as those shown in lessons or dealt with during internships, the ability of critical analysis by the learner will be tested beyond to the patient, developing the most appropriate diagnostic path. In the written test the student will have to demonstrate knowledge of the biological bases that lead to the development and progression of Cardiovascular pathology and states of emergency starting from the genetic, environmental, and pathophysiological bases up to the clinical evolution of symptoms and the fundamental notions of radiology, and the interactions between radiation and matter. Clinical cases will be included in the written test to assess the student's ability to coordinate the diagnostic-therapeutic process of the cardiovascular and trauma patient or in patient with respiratory failure. The oral exam consists of an oral interview based on the discussion of a clinical case through which the student will be able to demonstrate knowledge of the evolution of the disease and being able to identify the correct diagnostic path to be implemented and the different therapeutic strategies that concur to the management of the patient suffering from cardiovascular disease, trauma or in respiratory failure. To verify the knowledge and skills acquired, the teachers will also take into consideration the evaluation of the clinical tutors in the booklet of each student. During the oral exam, each student will be evaluated by 3 teachers / commissions with questions relating to the program.

Mark out of thirty for the written test. Optional oral exam (if student want to try to implement the grade obtained with the written test, but confirmation of the written test grade is not guaranteed).
The written test will consist of 60 multiple choice quizzes to be solved in 60 minutes.
The written test will be made of multiple-choice questions divided as follows: 25 emergency cardiology questions, 25 emergency cardiovascular surgery questions, and 10 anaesthesia and resuscitation questions.
The written test will be evaluated in thirties and will be passed by reaching a sufficient grade (18/30) in ALL subjects.
At the end of the session there will be the optional oral interview. If the student chooses to take the final interview, the grading of the written test may increase or decrease.

Testi di riferimento

Slides of the lessons uploaded to e-learning on the days before each lesson.
Lecturers will recommend original and review articles on specific and interesting topics during the course.

Suggested Textbooks
CARDIOLOGY:
- Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine. Authors: Braunwald - Mann - Libby - Bonow - Zipes – Tomaselli. Publisher: Elsevier, 11th Edition, 2018; ISBN: 9780323462990

VASCULAR SURGERY:
- Rutherford's Vascular Surgery and Endovascular Therapy, 2-Volume Set, 9th Ed., Elsevier (textbook). By Anton N Sidawy and Bruce A Perler. ISBN Number 9780323427913
- Vascular and Endovascular Surgery: A Comprehensive Review, 9th Ed., Elsevier (textbook). By Wesley S. Moore. ISBN Number 9780323480116
- Comprehensive Vascular and Endovascular Surgery - 2nd Ed., Mosby Ltd. (textbook). By John W. Hallett, Jr., Joseph L. Mills, Jonothan Earnshaw, Jim A. Reekers, and Thom Rooke. ISBN Number 9780323057264
- Master Techniques in Surgery: Cardiac Surgery by Frederick Grover and Michael J. Mack | 10 Mar 2016 Wolters Kluwer

ANESTHESIOLOGY, RESUSCITATION AND PAIN THERAPY:
2020 American Heart Association Guidelines for CPR and ECC
https://cpr.heart.org/en/resuscitation-science/cpr-and-ecc-guidelines

Risultati di apprendimento specifici

Cardiovascular emergency is an integrated course that includes the teaching of emergency cardiology, emergency cardiovascular surgery and anaesthesiology, resuscitation and pain therapy required in urgent setting. The course aims to address the themes of the individual subjects in a multidisciplinary manner, sharing different views in the approach to promptly diagnosis and therapy, both medical and surgical, to the pathologies under study.
Cardiovascular emergency course provides knowledge and experience through formal lectures and seminars, problem-based and case-based learning, and practical clinical sessions at the bedside or in the simulation centre

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	10	MED/11, MED/23, MED/41, MED/11, MED/23, MED/41

Stampa del 16/10/2026

Clinical Medicine (1) [1204307]

Offerta didattica a.a. 2026/2027

Docenti: FABIO MANGIACAPRA, ANNUNZIATA NUSCA, SIMONE SCARLATA, GIORGIO MINOTTI, MARIO CIOCE, SILVIA ANGELETTI, ELISABETTA RICOTTINI

Periodo: Primo Ciclo Semestrale

Obiettivi formativi

Clinical Medicine 1 (CM1) is an integrated course that includes the teaching of cardiovascular and respiratory diseases, pharmacology, general pathology and clinical pathology. The course aims to address the themes of the individual subjects in a multidisciplinary manner, sharing different views in the approach to diagnosis and therapy to the pathologies under study. CM1 provides knowledge and experience through formal lectures and seminars, problem-based and case-based learning, and practical sessions at the bedside or in the simulation center.

Prerequisiti

To follow the course and make a profit from the proposed program, students should have a solid background in basic human anatomy and physiology, general pathology and pathophysiology, and pharmacology. Furthermore, students wishing to enrol in the course should possess the knowledge and critical understanding of biology, chemistry, physics, mathematics and semeiotics and the integration of principles across the preclinical sciences.

Contenuti del corso

Cardiology:
Course objectives. The course is designed to provide a thorough understanding of the scientific basis of the main cardiac diseases and congenital heart diseases and how this relates to diagnosis and treatment. After the conclusion of the course, students will be able to explain the basic nature of cardiac disease processes from the standpoint of causation, epidemiology, natural history, and the clinical manifestations that result. This will allow the students to clinically assess patients with cardiac diseases (symptoms and signs), as well as to interpret invasive and non-invasive instrumental diagnostics (laboratory tests, electrocardiogram, echocardiogram, angiography). During practical sessions, they will develop further skills in history taking, physical exam, clinical reasoning. The course will also provide the scientific basis of established and novel cardiovascular treatments (pharmacological, percutaneous, surgical) according to the latest guidelines and with a strong translational emphasis. Furthermore, by the end of the course, the students will be able to understand and apply the fundamental methods of scientific research within the field of cardiovascular sciences.
Structure of the course. Heart and coronary physiology. Clinical and instrumental diagnostics of the heart and circulatory apparatus. Atherosclerosis pathophysiology and its complications. ST-segment acute myocardial infarction. Non-ST segment acute coronary syndromes. Chronic coronary syndromes. Coronary angiography and revascularization indications. Heart failure. Cardiomyopathies. Valvular diseases (mitral, tricuspid, aortic and pulmonary diseases), including indications to surgical and percutaneous treatment. Arterial hypertension. Arrhythmias. Cardiac arrest – Sudden death. Sinus Disease – AV conduction disorders. Indications to pacemaker, implantable cardioverter defibrillator and resynchronization therapy. Pericarditis, myocarditis, endocarditis. Congenital Heart Diseases.

Respiratory Diseases:
Course objectives. The objective of the course is to provide students with the understanding of basic physiopathology affecting the respiratory system, the identification of available tools/machines for a correct differential diagnosis and the identification of symptoms and clinical evaluation through diagnostic tools and analyses. After the conclusion of the course, students are required to demonstrate the following: adequate and systematic knowledge of the most relevant diseases affecting different systems (with their nosographic, etiopathogenic, physiopathologic and clinical aspects) in a global and wholistic vision of human diseases; critical assessment and correlation of clinical symptoms, physical signs and functional alterations detected in a patient, and adequate interpretation of the pathology production mechanisms, and understanding of its clinical meaning; - Independent clinical judgment, appropriate medical language, and communication skills that can enhance and integrate the knowledge acquired; adequate clinical reasoning skills, medical history data collection skills and skills in detecting objective reports specific to each nosological group; adequate knowledge of examination procedures using functional and laboratory tools/machines to diagnose respiratory diseases; adequate interpretation of the results of such examinations, diagnosis conclusion and proposal of a valid and effective treatment course.
Structure of the course. Investigation methods for chest pathologies. Semiotics, respiratory system physiopathology, radiology, ultrasound, and endoscopy. Introduction to respiratory system physiopathology. Definition of lung volume and capacity, evaluation of gas exchange efficiency and of respiratory muscles efficiency. Dysfunctional patterns:

obstructive and restrictive. Semiotics in lung radiology: chest X-ray, Computerized Tomography scan, Magnetic Resonance Imaging. Dyspnoea and Chronic cough. Pleural diseases: physiopathology, clinical evaluation, diagnosis, and treatment (pleural effusion, pneumothorax, hemothorax, chylothorax and pleural neoplastic diseases). Respiratory failure, acid-base regulation principles Interpretation of Arterial Blood Gas Tests. Deep-Vein Thrombosis and Pulmonary Embolism. Chronic Obstructive Pulmonary Disease. Asthma. Non-tuberculous lung infections. Tuberculosis and atypical mycobacterial infections. Sleep breathing disorders: OSA (Obstructive Sleep Apnea) and CSA (Central Sleep Apnea). Classification, diagnosis, and treatment of restrictive pulmonary diseases (pulmonary, extrapulmonary, primary and secondary). SARS-CoV-2 pneumonia. Rare lung pathologies and miscellanea Sarcoidosis, Alpha-1 antitrypsin deficiency, Cystic fibrosis, bullous diseases.

Pharmacology:
Course objectives. The course will be structured in entry seminars on drugs or classes of drugs briefly highlighted in parallel courses of Cardiology. The course aims at promoting the student's ability to familiarize with clinically oriented mechanisms of drugs action(s) and to elaborate and communicate the risk-benefit ratio of the main classes of cardiovascular drugs. Moreover, at the end of the course, the student should be able to prescribe drugs according to evidence-based medicine
Structure of the course. Introduction to cardiovascular pharmacology. Pharmacological management of hypertension. Heart failure and its treatment. Ischemic cardiomyopathy and pharmacologic treatment. Antiarrhythmic drugs. Lipid-lowering agents. Antithrombotic Agents. Parenteral anticoagulants. Cardiovascular effects of coxibs

General Pathology:
Course objectives. The objective of the course is to provide students with an understanding of the basic mechanistic basis of obstructive vs. restrictive lung diseases, of acute vs. chronic lung diseases, ARDS, granuloma as a model of immune response and pneumoconiosis. Mechanistic basis of AMI, atherosclerosis as a model disease, inside-out signalling in atherosclerosis. Cardiovascular disease (CVD) modelling within the context of metabolic syndrome, NIDDM and obesity.

Clinical Pathology:
Course objectives. The objective of the course is to provide students with an understanding of the principles of Clinical Pathology and Laboratory Medicine, with particular emphasis on cellular, molecular, and genetic diagnostic methodologies applied to human diseases. The course covers the interpretation of laboratory tests in major clinical fields, including oncology, immunology, reproductive medicine, and preventive medicine. Particular emphasis is placed on integrating laboratory findings with clinical decision-making. Students will acquire the foundations necessary to understand the role of laboratory medicine in the diagnosis, prognosis, and monitoring of human diseases.

Metodi didattici
The course contents will be delivered by integrating the different topics taught using lectures, problem-based and case-based learning, and interactive sessions.

Modalità di verifica dell'apprendimento
The final exam will take place at the end of the classes, as scheduled in the academic calendar. For this course, knowledge gained and the ability to apply each of the topics taught will be assessed with an oral exam.

The oral exam will be considered passed if a sufficient grade is achieved in all subjects. The final grade is calculated based on the average of the grades obtained in all subjects.
The test may be attempted more than once during the exam session.

Testi di riferimento
Cardiology:
- J. Larry Jameson, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, Dan L. Longo, Joseph Loscalzo Harrison's Principles of Internal Medicine, 20th edition – Publisher: McGraw-Hill
- Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine. Authors: Braunwald - Mann - Libby - Bonow - Zipes – Tomaselli. Publisher: Elsevier, 11th Edition, 2018; ISBN: 9780323462990

Respiratory Diseases:
- J. Larry Jameson, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, Dan L. Longo, Joseph Loscalzo Harrison's Principles of Internal Medicine, 20th edition – Publisher: McGraw-Hill
- Stephen G. Spiro & Gerard A Silvestri & Alvar Agustí. Clinical Respiratory Medicine, 4th Edition
- West JB. West's Pulmonary Pathophysiology, ninth edition - Publisher: Lippincott Williams and Wilkins

Pharmacology:
- Bertram G. Katzung and Anthony J. Trevor. Basic and Clinical Pharmacology 15th edition. Lange Publishing Co.
- Goodman and Gilman's The Pharmacological Basis of Therapeutics 14th edition. McGraw Hill

Publishing Co.

General Pathology:
- Robbins and Cotran Pathologic Basis of Disease, (Robbins Pathology) 9th Edition

Clinical Pathology:
- TBA

Risultati di apprendimento specifici

At the end of the Integrated Course CM1, students will be able to integrate knowledge of General Pathology, Clinical Pathology, Pharmacology, Cardiology, and Respiratory Medicine to understand the pathophysiological mechanisms, diagnostic approaches, and principles of treatment of major diseases. They will be able to interpret clinical and laboratory findings in relation to disease mechanisms and therapeutic strategies. Students will acquire a multidisciplinary approach to clinical reasoning by integrating basic and clinical sciences.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	13	MED/04, MED/10, MED/10, BIO/14, MED/05, MED/11, MED/11, MED/10, MED/11

Stampa del 16/10/2026

Clinical Medicine (2) [1204312]

Offerta didattica a.a. 2026/2027

Docenti: MENTORE RIBOLSI, PAOLO POZZILLI, MICHELE CICALA, SANDRO FERIOZZI, GIORGIO MINOTTI, MARIO CIOCE, SILVIA ANGELETTI, ANDREA PALERMO, MARIA FRANCISCA NAVAJAS MARTINEZ

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi

The integrated Clinical Medicine 2 course teaches scientific knowledge alongside clinical training with the aim to learn material by topic rather than by discipline, i.e. by studying the endocrine system the student will learn pathogenesis, diagnostics tools, pharmacology, oncology, surgery, all relevant topics to that specific system. Problem-based and case-based learning do represent the core of teaching mode. The course offers clinical exposure while still giving the supportive structure of teaching delivered in the form of lectures and seminars. Teaching science in the context of clinical examples making connections among concepts through integrated presentation of material represents the means for increasing deeper understanding and long-term retention. By comparing clinical examples students can identify the features of basic science concepts to elaborate on that knowledge when progressing into clinical activities. Multidisciplinary, interdisciplinary and transdisciplinary interactions allow students to learn CM2 in a fully comprehensive fashion.

Prerequisiti

To follow the course and make a profit from the proposed program, students should have a solid background in basic human anatomy and physiology, general pathology, and symptomatology. Furthermore, students wishing to enrol in the course should possess the knowledge and critical understanding of biology, chemistry, physics, and mathematics and the integration of principles across the preclinical sciences.

Preparatory examination: Fundamentals of Basic Science V
Fundamentals of Medicine IV

Contenuti del corso

NEPHROLOGY: Introduction to nephrology; diagnosis in nephrology; assessment of renal function; nephrotic syndrome; rapidly progressive renal failure; glomerulonephritis; acute kidney injury; vascular diseases; infectious diseases; cystic diseases; hereditary nephritis; nephrolithiasis; tubular disorders; diabetic nephropathy; lupus nephritis; renal involvement in rheumatic diseases, kidney involvement in haematologic pathologies; arterial hypertension and renal disease: non-immunologic mechanisms of the progression of renal diseases, chronic renal failure: laboratory and clinical features, renal replacement therapy: haemodialysis and peritoneal dialysis. Renal transplantation.
Knowledge of the classification, epidemiology and clinical approach to the most relevant renal diseases; nephrotic syndrome; nephritic syndrome; rapidly progressive glomerulonephritis; urinary abnormalities; acute kidney injury; chronic kidney disease; haemodialysis and peritoneal replacement of renal function. Management of renal transplantation.

GASTROENTEROLOGY: The course of Gastroenterology and Hepatology allows a science-based study of the physiology, cell biology, pathology and pharmacology of the gastrointestinal tract and liver in health and disease. Gene-environmental interactions, including metabolic, genetic and nutritional disorders, GUT-brain disorders, principles underlying diagnosis and therapy, with the emphasis on the science underlying imaging and neoplasia, and infective, immunological and inflammatory mechanisms as applied to the gastrointestinal tract and liver will be studied. The course aims to give a firm grounding in the scientific basis of gastroenterology and hepatology. Students will acquire a wider, more generally applicable knowledge of inflammation mechanisms, metabolism, infectious disease and pathology. After taking this course students will have a broad knowledge of the physiology of the GI tract and liver in health, and the pathophysiological mechanisms which lead to disease, an appreciation of various genetic and environmental influences on disease including nutritional science and metabolism, knowledge of the scientific principles underlying diagnostic techniques and modern therapies, familiarity with epidemiology, mechanisms and treatment of neoplasia in the GI tract and liver and an understanding of immunological, infective and inflammatory mechanisms in general and in specific GI and liver diseases.
Students will gain a practical knowledge of gastrointestinal investigation. Students will have a more general understanding of scientific method and experience in literature searches, assessment of publications and presentation of scientific reviews will be gained.

DIGESTIVE SURGERY: The course will address, in strict collaboration with the gastroenterology teachers, the

surgical aspects of the inflammatory bowel diseases, the neuromuscular diseases of the esophagus and the gastroesophageal reflux disease, with special reference to indications, technique and results of surgical treatment, and to the recent advances in endoscopic treatment. Surgical treatment of Crohn disease will be described, including perianal disease, as well as indications, contraindications, adverse effects of surgery for ulcerative colitis, and quality of life after the different surgical options.

ENDOCRINOLOGY: Epidemiology, pathogenesis, diagnosis, clinical features and therapy of Endocrine and Metabolic diseases including Diabetes, Obesity, Bone diseases with specific focus on Osteoporosis, Dyslipidaemias, Hypothalamus-pituitary diseases, Thyroid diseases, Parathyroid diseases, adrenal diseases, ovary and testis diseases, Multiple Endocrine Neoplasia, Autoimmune polyendocrine diseases.
Particular attention to be given to how abnormal hormonal secretion plays a major role in body homeostasis in different pathological conditions, also as a result of systemic pharmacotherapy.

MEDICAL ONCOLOGY: Risks factors that lead to cancer predisposition and genetic factors associated with the development of different types of cancers; semiotic findings (symptoms and medical signs) of the main types of cancer; main Diagnostic procedures and principles of screening for the so called "big killers"; how to interpret radiological, biochemical and pathological findings suspect for cancer; main predictive and prognostic factors for cancer; principles of treatments and main guidelines for daily clinical practice in oncology; principles of integrated approach in cancer management; principles of palliative care in cancer patients; new frontiers in cancer treatment. Target therapy, immunotherapy, and beyond; interpretation of clinical trials in cancer medicine and principles of trial designs; Communication skills for cancer care.
During training, students will join the Multidisciplinary tumour board, will participate in the hospital meetings, and attend the clinical activities in the ward and in the day hospital service
.
ONCOLOGICAL, DIGESTIVE, ENDOCRINOLOGY AND METABOLIC SURGERY: The course will address the most frequent oncologic diseases of the bowel and digestive organs, including liver and exocrine pancreas, with special interest on the early detection, diagnosis and surgical treatment. It will focus on the recent advancements of minimally invasive treatments and techniques of organ preservation. Surgical treatment of thyroid diseases, of endocrine pancreas and of adrenal diseases will be taught. The indication, techniques and results of surgical treatment of morbid obesity will be extensively described, paying special attention to the current knowledge on the metabolic effects of most frequents surgical techniques. The recent advancements of the endoscopic techniques will be described, analysing the available results.

PHARMACOLOGY: The course will be structured in entry seminars on drugs or classes of drugs briefly highlighted in parallel courses of Nephrology, Urology, Endocrinology, Digestive Diseases, Oncology and Hematology. Focus seminars will then follow to deepen knowledge of clinically oriented mechanisms of action, main toxicities, overall risk:benefit of each drug or classes of drugs.

LABORATORY MEDICINE: Pre-analytical, analytical and post-analytical variability. Conditions that may alter the results of laboratory tests; different sampling options. Correct application of techniques for sampling and collection of biological materials (blood, urine, other). Technique of diagnostic venous sampling. Technique of blood culture in different clinical situations (timing, etc.).
Quality control and principles on which it is based. How to improve sources of variability. General principles of the most common techniques in use in laboratories. The concept of normality in biology and risk functions (normal values on a statistical basis, normal values on a biological basis, desirable values and risk functions, decision values that can be used for diagnostic or therapeutic purposes). Critical evaluation of a report (reference intervals, sensitivity and specificity of a test, predictive value, critical difference). Remembering the reference values of common routine analyses: blood tests, urine tests, etc. Interpretation of enzymatic and isoenzymatic measurements as a diagnostic tool in specific and organ diseases. Interpretation of complete urine tests for diagnostic purposes. Investigations for the control of pregnancy. Orientation on the choice and meaning of the main diagnostic tests in the most common endocrine pathologies. Interpretation of the results of the main haematological investigations in the diagnostic address of anaemias, coagulopathies and monitoring of anticoagulant therapies. Interpretation of CSF examination results. Selection, in the presence of pathologies, of the serological and microbiological investigations indicated by the specific circumstances. Interpretation of serological and microbiological test results for subsequent clinical decisions.

Metodi didattici

The aims of the course will be achieved by an integration of the different topics taught by means of lectures and problem-case based learning approach, video projections, and interactive learning. This teaching methodology will combine clinical observation together with two/three weeks of full day formal lectures. Students will be continuously stimulated and not be treated as passive learners but called to actively interact in the lectures. The class will be closely integrated with the topics described above, highlighting the interconnection between different organs in disease expression. Multidisciplinary seminars will also be organized by experts, during which specific topics are discussed in-depth.

Modalità di verifica dell'apprendimento

The final exam will take place at the end of the course, in accordance to the sessions scheduled in the academic

calendar. For this course, knowledge acquired and the ability to put in medical practice each of the topics taught will be evaluated with an oral test consisting in the evaluation of the CM2 related topics and a clinical case presentation. Students need to demonstrate adequate levels of understanding topics covered in the course alongside with suitable communication and judgement skills.
Subjects involved in the CM2 exam include:
- Gastroenterology, Endocrinology,
- Nephrology,
- Pharmacology Medical Oncology (related to the above mentioned topics)
Pharmacology exam will be the only one carried out in written form.

Testi di riferimento

NEPHROLOGY:
☐ Harrison's: Principles of internal medicine, McGraw-Hill 20th Edition; 2021
☐ Brenner and Rector: The kidney, W.B.Saunders Company; 11th Edition; 2019
☐ Floege,Johnson,Feehally: Comprehensive clinical nephrology 6th Edition; 2019

GASTROENTEROLOGY:
☐ UNIGASTRO – digestive diseases. Edition 2019-2022
☐ Harrison's Principles of Internal Medicine, Twentieth Edition (Vol.1 & Vol.2) 20th Edition

DIGESTIVE SURGERY:
☐ Sabiston Textbook of Surgery latest Edition. During the course selected recent literature and international guidelines will be provided to the students.

ENDOCRINOLOGY:
☐ Greenspan's Basic and Clinical Endocrinology, Tenth Edition (A & L LANGE SERIES) 2017
☐ Williams Textbook of Endocrinology by Shlomo Melmed MBChB MACP, Ronald Koenig, et al. | 2 Jan 2020
☐ Pozzilli P et al, Handbook of Endocrinology & Metabolic Diseases, 2023

*Italian edition:
☐ Paolo Pozzilli, L'Endocrinologia del Campus Bio-Medico, Minerva Medica, 2020

ONCOLOGY:
☐ Abeloff's Clinical Oncology, 6th Edition – Elsevier, 2019
☐ Radiation Oncology Management Decisions, K.S. Clifford Chao MD, Carlos A. Perez MD, Tony J. C. Wang MD, Wolters Kluwer
☐ Publications suggested by the Professors

ONCOLOGICAL, DIGESTIVE, ENDOCRINOLOGY AND METABOLIC SURGERY:
☐ Sabiston Textbook of Surgery latest Edition. During the course selected recent literature and international guidelines will be provided to the students

☐ Schein's Common Sense Emergency Abdominal Surgery 5th Edition - TFM Publishing; 5th edition (September 1, 2020) by Dr Danny Rosin, Dr Paul N. Rogers, Dr Mark Cheetham, Professor Moshe Schein

PHARMACOLOGY:
☐ Bibliography will be suggested ad hoc during the course

LABORATORY MEDICINE:
☐ Laposata's Laboratory Medicine diagnosis of disease in clinical Laboratory - Michele Laposata - 3rd Edition McGraw Hill Education (2019)

Risultati di apprendimento specifici

Knowledge and understanding
Students must achieve an adequate comprehension and knowledge of the disease processes affecting different subjects including Nephrology, Urology, Gastroenterology, Digestive surgery, Endocrinology, Oncology, Haematology, Oncological, digestive, endocrine and metabolic surgery, Medical imaging, Radiotherapy, Morbid anatomy, and Pharmacology.
Students must learn and understand how different disease topics may relate with each other. The relevance of an integrated approach to patients, affected by diseases of organs belonging to the system under study, from disease presentation to diagnostic procedure, medical and or surgical treatment alongside with different histopathological features leads to a broad comprehension favouring a wide overview of the clinical issue.

Applying knowledge and understanding
At the end of the course, students are expected to be able to diagnose diseases under study, to recognize different clinical pictures and to select the most appropriate treatment (medical and/or surgical) according to disease stage and progression.

Making judgments
Students will be prompted to develop their judgment skills by attending both interactive lectures and by being constantly stimulated to reason and to always hold a comprehensive and critical view of the patient's disease. This can be facilitated by attending both in-patient wards and out-patient clinics. To this end, not only will the students actively participate in the lectures and in the clinical activities, but the topics to be covered will also be introduced by pushing the students with challenging integrated questions and through periodic interactive seminars.

Communication skills
The students are expected to develop a specific and precise scientific terminology, which is critical for an adequate understanding of the complex interaction between different systems. To achieve this, the class is aimed at making communication skills learned, rather than taught. This approach is facilitated by direct contact with patients.

Learning skills
Students will learn to critically understand a disease process by combining knowledge acquired during lectures and direct contact with the patient. They will also learn to solve problems occurring with patients, both when admitted to the wards or when followed-up in out-patient clinics. They will learn different strategies required to treat a patient after diagnosis, how the patient should be followed-up and how to apply evidence-based guidelines to the treatment of the diagnosed disease. They will also learn how to interpret the different strategies which can be considered for patient treatment and to make a personalised therapy according to disease stage and progression. Finally, students will learn how to take a scientific approach to medical problems and how to communicate effectively scientific knowledge in the specific subjects.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	15	MED/04, MED/12, MED/12, MED/13, MED/13, BIO/14, MED/05, MED/14, MED/12, MED/13, MED/14

Stampa del 16/10/2026

CLINICAL MEDICINE (5) [1204501]

Offerta didattica a.a. 2026/2027

Docenti: UMBERTO VESPASIANI GENTILUCCI, ANTONIO DE VINCENTIS, STEFANO MASTRANGELO, GIOVANNI ASSENZA, BARBARA BARCACCIA, CLAUDIO PEDONE, ROBERTO ANGIOLI, CORRADO TERRANOVA, ROSARIO FRANCESCO GRASSO, CORRADO MINIMO, GIORGIO MINOTTI, PAOLO GALLO, FRANCESCA ARDENTI MORINI

Periodo: Primo Ciclo Semestrale

Obiettivi formativi

Objective of the course is that of integrating the knowledge concerning the main internal medicine diseases occurring throughout the lifespan, from paediatric age until adulthood and elderly, including woman gynaecological disorders. In the context of each specific course, pertinent elements of Pharmacology, Radiology and morbid Anatomy will be also given.
The pediatric population has unique features due to age-related physiology and burden of diseases, and their specific needs require specific approaches. In the course of Pediatrics, the students will learn the basics of pediatrics, starting from early postnatal life until the pubertal progression and the final stature and sexual maturation. They will be also introduced to the principles of neurological development of the newborn and the most prevalent neuropsychiatric disorders in pediatric age.

Teaching of Internal Medicine will be aimed to the presentation of the most important clinical pictures in which multiorgan interaction and differential diagnosis are crucial. A particular attention will be given also to the principal end organ decompensations and failures.
In the course of Geriatrics, students will understand the unique features of older people due to age-related physiological changes and burden of diseases, and their specific needs. In this course the students will learn the basics of geriatric medicine, focusing on the concepts of healthy ageing and related constructs (functional capacity, frailty, resilience) and on the management of geriatric syndromes and multimorbidity.

In the course of Gynecology, students should be able to recognize the clinical presentation of the main gynecologic diseases and describe their clinical management in terms of diagnosis and treatment.
In the course of Obstetrics, the students will learn the basics of obstetric medicine, focusing on the concepts of healthy and pathological pregnancy and related constructs (especially the relationship between pregnancy and the most common medical or surgical comorbidities) and on the management of the most common syndromes of gestation.
The course of Clinical Psychology introduces students to the core principles of this discipline. By the end of the course, students will understand what Clinical Psychology is, the methods to conduct research in this field, mental disorders and their psychological treatment.
In the context of this integrated course, the teaching of Radiology and Pharmacology will be consistent with the topics treated in the other disciplines, while the teaching of Morbid Anatomy will be centred to Gynecologic Pathology and and Breast Pathology.

Prerequisiti

none

Contenuti del corso

Pediatrics
1. Transition from fetal to neonatal life, clinical examination of the newborn and classification according to weight (SGA, AGA and LGA) and gestational age (preterm and term newborn).
2. Breastfeeding, neonatal screening and care of healthy neonates
3. Asphyxia and principles of resuscitation
4. Neonatal jaundice, hematological and metabolic disorders of the newborn
5. Respiratory disorders of the newborn
6. Respiratory disorders of the child (cistic fibrosis, asthma, bronchiolitis and pneumonia)
7. Infections in newborns
8. Infections in children (Immunization, exanthema. Fever. Febrile convulsions. Meningoencephalitis. Pharyngitis, tonsillitis, otitis. Urinary tract infection. Hemolitic uremic syndrome)
9. Notes on pediatric cardiology (congenital heart disease)
10. Body development, pubertal progression and related pathological conditions (Growth disturbances, Growth hormone deficiency, early and delayed puberty.)

11. Diabetes
12. Gastroenterological disorder (acute and chronic diarrhea, celiac disease, gastroesophageal reflux, appendicitis, volvulus and invagination).
13. Hematological disease of childhood (Anemia, thrombocytopenia, hemophilia, leukemia, lymphoanenopathy and lymphomas)
14. Pediatric oncology (Neuroblastoma, Wilms tumor, CNS tumors and neurofibromatosis)
15. Rheumatic diseases of infancy (Rheumatic fever, Henoch Schonlein purpura, Kawasaki disease)
16. Child abuse and head trauma

Pediatric neuropsychiatry
• Neurological examination in the newborn.
• Neurological development of the newborn
• Autism spectrum disorder
• Epilepsy principles
• Genetic generalized epilepsies
• Epilepsy in infancy and adolescence

Internal Medicine
• Approach to the patient with anemia
• Approach to the patient with hydroelectrolytic disorders:
-hyponatremia and hypernatremia
-hypokalemia ed hyperkaliemia
-hypocalcemiia hypercalcemia
• Approach to the patient with jaundice
• Approach to the patient with fever of unknown origin
• Approach to the patient with sepsis
• Approach to the patient with ascites
• Approach to the patient with hepatic failure
• Approach to the patient with cardiac failure
• Approach to the patient with renal failure
• Approach to the patient with pulmonary infection and respiratory failure
• Approach to the patient with arterial hypertension
• Approach to the patient with dyslipidemia
• Approach to the patient with type 2 diabetes mellitus

Geriatrics
1. Geriatric patients and geriatric medicine
2. Principles of gerontology
3. Evaluation of organ function in older people: pearl and pitfalls:
– Heart
– Lung
– Kidney
4. Beyond diseases: the Geriatric Syndromes
– Delirium
– Syncope & falls
– Urinary incontinence
– Malnutrition
5. The management of the complex geriatric patient:
– Multimorbidity and polypharmacotherapy
– Palliative care and end-of-life care

Gynecology
1. Anatomy of the female reproductive tract. Physiology of the hypophyseal and ovarian functions. The menstrual cycle.
2. Gynecologic Endocrinology: Amenorrhea. Chronic anovulation. Polycystic ovarian syndrome. Hyperandrogenism. Adrenogenital syndrome. Hormonal contraception. Menopause, climacteric syndrome and hormone replacement therapy.
3. Benign Gynecologic Diseases: Abnormal uterine bleeding. Uterine myomas. Endometrial polyps and hyperplasia. Endometriosis. Ovarian cysts. Urogynecology: pelvic organ prolapse, urinary incontinence. Infectious diseases of the genital tract. Vulvar dermatoses.
4. Gynecologic Oncology: Ovarian, endometrial, cervical and vulvar cancer. Gestational trophoblastic disease. Screening tests for cervical and breast cancer.

Obstetrics
1. Physiological changes in pregnancy
2. Embryogenesis and fetal development
3. The main obstetric syndromes: recognition and management notes
4. Autoimmune diseases in pregnancy
5. The thyroid: normality and disease in pregnancy

6. Management of hypertension in pregnancy
7. Sepsis and Infectious Diseases in pregnancy
8. Management of antibiotic therapy in pregnancy
9. Effects of pollution on gestation
10. Liver disease in pregnancy
11. Cardiac arrest in pregnancy
12. Physiology of Labor – Normal Labor
13. Vaginal Delivery
14. Intrapartum Assessment
15. Management of Obstetrical Hemorrhage
16. Preterm Birth

Clinical Psychology
Clinical Psychology in Historical Context
Research in Psychopathology
Anxiety Disorders
Somatoform and Dissociative Disorders
Depressive and Mood Disorders
Physical Disorders and Health Psychology
Eating Disorders
Gender Identity Disorders
Personality Disorders
Schizophrenia
Well-being promotion

Pharmacology
Basic knowledge of poisoning, overdose and addiction drugs: toxicity, symptoms, diagnosis, recommended treatment principles and antidotes
Medical toxicology of drugs of abuse: alcohol, amphetamines, cocaine, heroin and cannabis

Metodi didattici

The classic frontal teaching will be alternated with the presentation and discussion of clinical cases shown as vignettes based on weekly reading assignments. Students will be guided in an interactive way through the different aspects of the topic. For some courses, e.g. Geriatrics, at the end of each lesson the students will perform a self-assessment test based on multiple-choice questions. For the clinical practice, students will be required to participate in the grand rounds and will be asked to evaluate clinical cases that will be discussed with the clinical tutor.
The Clinical Psychology course is arranged in forms of lectures, seminars, discussions and role-plays. Lectures in form of presentations provide key-information, but a lot of work is done during discussions in small groups and role-plays. Materials for class activities are provided in printed and/or electronic form. Students will be required to watch online videos throughout the semester, so they should plan their schedule so that they can keep up with videos viewing (some of them have to be watched before lectures).

Modalità di verifica dell'apprendimento

The final exam will cover only the topics discussed during the lectures. It will consist of multiple-choice questions (4 possible answers for each question, only 1 correct). Each correct answer will be assigned a number of points such that the total score corresponds to the maximum grade of 30 cum laude, while unanswered or incorrect questions will receive 0 points.
As in the previous year, the grading scale for each individual module will be calibrated based on the average of the three highest scores obtained in that module (clearly, for each module, only the results from the first exam session will be considered initially, while in subsequent sessions the three highest overall scores in that specific module will be taken into account). The final grade will therefore be the average of the grades obtained in the two modules.

Progress tests consisting of multiple-choice questions may be administered during the semester at the discretion of each course instructor, as formative assessments intended to provide both students and instructors with feedback on the knowledge and understanding of the topics covered. At the instructor's discretion, the results of these progress tests may contribute to the final exam grade, in a manner consistent with the number of credits assigned to the course.

Testi di riferimento

Pediatrics: Nelson, Essentials of Pediatrics. Elsevier, 2022.

Pediatric Neuropsychiatry: Material provided by the teachers.

Internal Medicine: Harrison, Principles of internal medicine. Mc Grow Hill, latest edition.

Geriatrics: Material provided by the teachers.

Clinical Psychology:
1) Handbook of Adult Clinical Psychology: An Evidence Based Practice Approach
Alan Carr & Muireann McNulty (Editors)
2) The Oxford Handbook of Clinical Psychology: Updated Edition (Oxford Library of Psychology)
David H. Barlow (Editor)
3) Handbook of Evidence-Based Practice in Clinical Psychology, Adult Disorders
Michel Hersen
4) Clinical Psychology, Bridging Science and Practice Ninth Edition, PEARSON
Bernstein, Teachman, Olatunji, Lilienfeld
5) Essentials of Abnormal Psychology
Durand, Barlow & Hofmann, Cengage Learning.
6) Casebook in abnormal psychology.
Brown, T. A., & Barlow, D. H. Cengage Learning.
Further information will be communicated to the students at the start of the course.

Gynecology: Williams Gynecology, 4e. Author: Barbara L. Hoffman, John O. Schorge, Lisa M. Halvorson, Cherine A. Hamid, Marlene M. Corton, Joseph I. Schaffer. Year of publication: 2020. Publisher: McGraw-Hill.

Obstetrics: Williams Obstetrics, 26e. Author: F. Gary Cunningham, Kenneth J. Leveno, Jodi S. Dashe, Barbara L. Hoffman, Catherine Y. Spong, Brian M. Casey. Year of publication: 2022. Publisher: McGraw Hill

Morbid Anatomy: Robbins & Cotran Pathologic Basis of Disease 10th Edition – 2022
Pharmacology: Bertram G. Katzung and Anthony J. Trevor. Basic and Clinical Pharmacology 15th edition. Lange Publishing Co.; Goodman and Gilman's The Pharmacological Basis of Therapeutics 14th edition. McGraw Hill Publishing Co.

Risultati di apprendimento specifici

At the end of the course of Pediatrics, students will learn to recognize the physiological somatic evolution and the main pathological conditions observed in the newborn, child and adolescent, and to manage the relative therapeutic approaches. Furthermore, they will be able to apply these concepts to real clinical situations observed in the neonatal, childhood and adolescent period.
Through the course of pediatric neuropsychiatry, students are expected to learn the neuropsychiatric signs and syndromes specific of the pediatric population and to apply these concepts to actual clinical situations.
At the end of the course of Internal Medicine, students will learn how to approach different complex clinical scenarios starting from differential diagnosis and arriving, through the proper use of the diagnostic armamentarium, until a tailored therapeutic approach.
Through the course of Geriatrics, students are expected to learn the specific features of a geriatric patient, to understand what are the underpinnings of the management strategies for these patients, and to be able to apply these concepts to different clinical situations.

At the end of the course of Gynecology, students are expected to know the basic principles of the diagnosis and treatment of gynecologic diseases, including patient counselling about contraceptive options, and to understand what are the underpinnings of the management strategies for these patients.

At the end of the course of Obstetrics, students will learn the specific features of the obstetric patients and the underpinnings of the management strategies for these patients, becoming able to apply these concepts to actual clinical situations.

At the end of the course of Clinical Psychology, the following learning objectives are expected to be achieved by students: understand the core principles of Clinical Psychology; describe research methods that are used to investigate Clinical Psychology phenomena; describe the symptoms and the associated manifestations of various mental disorders; make differential diagnoses based on the DSM-5; analyse the core elements of evidence-based therapies for various disorders; describe some well-being promotion strategies; effectively communicate diagnosis and prognosis.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	35	MED/36, MED/40, MED/40, M-PSI/08, MED/38, BIO/14,

MED/39, MED/08,
MED/09, MED/09,
MED/09, MED/40,
MED/38, MED/38,
MED/09, MED/09

Stampa del 16/10/2026

Dermatology and plastic surgery [1204502]

Offerta didattica a.a. 2026/2027

Docenti: STEFANIA TENNA, GIULIANO ALBERGO, VINCENZO PANASITI, ELIODORO FAIELLA, MICHELE DONATI, GIORGIO MINOTTI, MICHELE RIBOLSI, GIOVANNI MARANGI

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi

Dermatology
• The course focuses on the main concepts of Dermatology that can be relevant for every medical doctor.
• During the course, the students would learn the basic principles of main skin diseases and acquire how to analyze skin lesions by non-invasive diagnostic tools such as dermoscopy
Plastic Surgery
• The course focuses on the main concepts of plastic surgery that can be relevant for every medical doctor on wound healing, post trauma, malformation or oncological reconstruction as well as cosmetic procedures
Psychiatry
• The course focuses on the main pathological psychiatric conditions from etio-physiopathology to clinic to treatment
Pharmacology:
• The Pharmacology course aims at making the student acquainted with general e specific knowledge on Methodology of Clinical Research
Medical Imaging:
• The course focuses on the diagnosis and loco-regional treatment of soft tissue lesions (MAV and skin cancers).
• During the course, the students would learn the basic principles of imaging modalities and interventional radiology procedures for the management of soft tissue lesions.

Prerequisiti

. Students must have completed all exams of the 3rd year (Dermatology and Plastic surgery) and of the 4rd year (pharmacology)

Good knowledge of normal human anatomy, anatomical pathology, human physiology and immunopathology is mandatory.

Contenuti del corso

Psychiatry
• Psychiatry and Medicine.
• Basic psychopathology.
• Psychiatric semiotics and etiopathogenetic hypotheses of mental disorders.
• Classification systems: DSM 5 – ICD-10.
• Notes on the history of psychiatry and the main currents of thought in psychopathology.
• Psychodiagnostics: mental tests and neuropsychological examinations. Questionnaires and symptom scales.
• The main pathological conditions:
o Schizophrenia and other psychotic disorders, mood disorders;
o Anxiety disorders;
o Somatoform disorders;
o Factitious disorders; Dissociative disorders;
o Sexual and gender identity disorders;
o Eating disorders; Impulse control disorder; Adaptation disorders;
o Personality disorders; Delirium, dementia, amnestic disorders;
o Disorders usually diagnosed for the first time in infancy, childhood and adolescence;
o Alcoholism, drug addiction and dual diagnosis;
o Mental disorders linked to social and technological development (burn-out, mobbing, transcultural pathologies and linked to the spread of new communication systems).
• Treatments in psychiatry: psychotherapy, psychotropic drugs and other forms of therapy, assistance and rehabilitation, individual, family and group.
Dermatology
• Melanoma and non-melanoma skin cancers
• Alopecia

• Syphilis and other sexual transmitted diseases
• Psoriasis
• Bullous dermatosis
• Eczema
• Lichen
• Urticaria angio-oedema
• Principles of dermoscopy

Plastic Surgery
• Wound healing. Scar. Ulcers.
• Basic techniques: Grafts and flaps.
• Techniques and principles in plastic surgery: Z plasty, V-Y advancement etc.
• Skin Cancer treatment
• Burn injuries.
• Congenital anomalies.
• Breast reconstructions.
• Principles of cosmetic surgery

Pharmacology:
• purpose and phases of clinical research,
• clinical trial development
• ethical and regulatory implications
• roles and responsibilities of all parties involved

Medical Imaging:
• US, CT and MRI
• Angiography
• Embolization
• Sclerotherapy
• Ablation modalities
• Melanotic lesions
• Non melanotic lesions
• Artero-venous Malformations

Metodi didattici

Dermatology
Frontal lessons: 24 hours
Practical sessions: 24 hours
Practical sessions will focus on clinical cases presentations.
Students will be invited to participate at the weekly interdisciplinary meeting on melanoma e non melanoma skin cancer

Plastic Surgery:
Frontal lessons: 12 hours and Practical sessions: 12 hours
Practical sessions will focus on clinical cases presentations.
Students will be invited to participate at the weekly interdisciplinary meeting on melanoma e non melanoma skin cancer
Pharmacology: Frontal lessons
Medical Imaging: Frontal lessons: 6 hours. Practical sessions will focus on clinical cases presentations.

Modalità di verifica dell'apprendimento

REQUIREMENTS
Students must have successfully completed all examinations of the 4th year, as required by the Degree Programme regulations.
A solid knowledge of Human Anatomy, Physiology, Pathological Anatomy, and Immunopathology is mandatory.

FINAL EXAM
The final examination consists of a comprehensive written test covering all disciplines included in the Integrated Course.
The test includes 56 multiple-choice questions, distributed proportionally according to the assigned CFU credits, as follows:
Psychiatry (4 CFU): 16 questions (single best answer, five options)
Dermatology (4 CFU): 16 questions, each composed of five True/False statements)
Plastic Surgery (2 CFU): 8 questions (single best answer, five options)
Pharmacology (2 CFU): 8 questions (single best answer, five options)
Radiology and Interventional Radiology (1 CFU): 4 questions (single best answer, five options)

Pathology (1 CFU): 4 questions (single best answer, five options)

Estimated duration: 2 hours.

Scoring System
Each correct answer in single best answer questions is awarded 1 point.
For Dermatology: Each correct True/False statement is awarded +0.2 points, each incorrect statement is penalized −0.2 points, unanswered statements receive 0 points. The maximum score for each Dermatology question is 1 point
The maximum total score for the written test is 56 points.

Grade Calculation
The final grade is calculated by converting the total score proportionally to the 0–30 grading scale according to the following formula:
Final Grade=(Total Score/56)×30

Passing Criteria
In order to pass the examination, students must:
Achieve at least 50% of the maximum score in each discipline, corresponding to:
Psychiatry: ≥ 8/16
Dermatology: ≥ 8/16
Plastic Surgery: ≥ 4/8
Pharmacology: ≥ 4/8
Radiology and Interventional Radiology: ≥ 2/4
Pathology: ≥ 2/4
Obtain an overall final grade of at least 18/30.

Failure to reach the minimum threshold in any single discipline results in failure of the examination.

Oral Discussion
The Examination Board may schedule an oral discussion in the following cases:
Borderline overall results
Verification of disciplinary thresholds
Evaluation for honours (30 cum laude)
The oral discussion aims to assess clinical reasoning, integration across disciplines, and depth of understanding.

Honours (30 cum laude)
Students obtaining a written score corresponding to at least 29/30, and having fulfilled all disciplinary thresholds, may be admitted to an oral discussion based on an integrated clinical case.
The clinical case is designed to assess:
-Advanced clinical reasoning
-Interdisciplinary integration across the disciplines included in the course
-Diagnostic interpretation and therapeutic decision-making
-Ability to justify clinical choices with appropriate scientific rationale
The award of 30 cum laude is granted unanimously by the Examination Board to students demonstrating outstanding analytical ability, integration of knowledge, and clinical maturity.

Testi di riferimento

Psychiatry
- Kaplan & Sadock's Synopsis of Psychiatry, 12th Edition
- Manuale di Psichiatria, a cura di Alberto Siracusano, Il Pensiero Scientifico Editore 2023
Dermatology:
- ABC of Dermatology sixth edition. Edited by Rachael Morris-Jones. Wiley Blackwell
Plastic Surgery:
- N. Scuderi, Chirurgia Plastica, Piccin Editore
- Grabb and Smith's Plastic Surgery settembre 2013 Edizione Inglese di M.D. Thorne, Charles H. (a cura di), M.D. Chung, Kevin C.
- Cervelli-Longo. Chirurgia Plastica Ricostruttiva ed estetica. Pacini Editore
- DVD: Chirurgia Plastica Ricostruttiva ed Estetica; Santanelli F., Scuderi N. Edizioni Luigi Pozzi.
Pharmacology:
- Katzung B.G. "Farmacologia generale e clinica", XI ed; a cura del Prof. Paolo Preziosi, Piccin
Laurence L. Brunton Randa Hilal-Dandan Björn C. Knollmann Goodman & Gilman. "Le basi farmacologiche della terapia", XIII ed; Zanichelli
Medical Imaging:
- Cittadini, Diagnostica per Immagini e Radioterapia, Edra.
- Passariello, Compendio di Radiologia, Idelson Gnocchi.

Risultati di apprendimento specifici

Dermatology
The students must achieve the knowledge of:
1) primary morphology in dermatology
2) nevi and Melanoma
3) non melanoma skin cancer
4) hair diseases.
5) sexual transmitted diseases
6) inflammatory cutaneous diseases
7) infectious skin diseases
Plastic Surgery:
The student must achieve the following goals:
1) To know the stages of wound healing.
2) To Indicate the basic techniques and principles in plastic surgery.
3) To describe the etiology, clinical and treatment options in burns injuries.
4) To explain the principal congenital anomalies, oncological and post traumatic pathologies that may require reconstructive surgery.
5) To describe the principles of the cosmetic surgery.
Pharmacology:
The goal of this course is to provide students with the fundamentals of clinical research focusing on its purpose, development, regulations, and implications in healthcare
Medical Imaging:
The student must achieve the following goals:
1) To know the principles of imaging modalities.
2) To Indicate the basic techniques in interventional radiology.
3) To identify the different type of soft tissue lesions on imaging.
4) To appropriately indicate the management for diagnosis and interventional radiology procedures in soft tissue lesions (MAV and skin cancer).

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	14	MED/36, MED/35, MED/19, BIO/14, MED/08, MED/25, MED/35, MED/19, MED/25

Stampa del 16/10/2026

CLINICAL MEDICINE (7) [1204601]

Offerta didattica a.a. 2026/2027

Docenti: FRANCESCO DE MICCO, MAURIZIO TREVISAN, SAVERIO STRANGES, VERUSKA LESO, PAOLO PARENTE, UMBERTO VESPASIANI GENTILUCCI, MASSIMO MAZZILLI, PAOLO GALLO

Periodo: Primo Ciclo Semestrale

Obiettivi formativi

The course aims to provide students with the knowledge and skills: (a) to understand the legal framework of medical obligations towards patients, the judiciary and the citizens, to understand the legal framework of medical liability, to critically evaluate forensic issues related to the ascertainment of death and its causes, to understand the main deontological issues of the medical profession; (b) to identify and address health issues at community level, with a focus on epidemiological elements, public health interventions and prevention, health promotion, diagnosis, treatment and rehabilitation in Primary Health Care; (c) on the history of Occupational Medicine, the role of the Occupational Physician and other figures in the prevention system, the impact of the main occupational risk factors on workers' health, tools and methods for diagnosing occupational diseases; (d) To guide students in reasoning through the most appropriate diagnostic-therapeutic pathways for clinical scenarios characterized by multimorbidity, they will be challenged to address issues of differential diagnosis, diagnostic and therapeutic prioritization, and drug interactions; (e) the international public health module aims to provide the students with a better understanding of the international pattern of disease, their determinants and life styles,social and environmental factors in death and disease.The importance of different prevention strategies both at the clinical and public health level. Epidemics. Prevention principles and different strategies for prevention. The role of Public Health in eradicating and controlling diseases with significant examples. Examples of important observational and clinical studies with important public health; (f) it will provide a braod, global overview of health care systems responses in relation to major clinical and public health challenges, such as commor chronic disease as case studies, as well as an introduction to the role of health economics in clinical medicine and clinical decision-making.

Prerequisiti

According to the Study Manifesto, there is no propaedeuticity for this Integrated Course.

Contenuti del corso

Forensic Medicine & Medical Ethics (FDM)
1. Forensic criminal medicine
- Concepts of criminal law
- Assault and personal injury
- Crimes against life
2. Forensic civil medicine
- Legal capacity and capacity to act
- Interdiction, incapacitation and support administration
3. Personal damage and compensation
4. Patient Safety and Healthcare Risk Management
5. Informed Consent
6. Medical records
7. Legal medicine of medical malpractice
8. Professional secrecy and the right to privacy
9. Report, crime report, mandatory health reports
10. Assessment and Compulsory Health Treatment
11. The pathophysiology of death and its ascertainment
12. Forensic pathology
- Transportation Injuries
- The Examination of Wounds
- Firearm and Explosive Injuries
- Asphyxia
13. Forensic toxicology
- Poisoning diagnosis
- Drug legislation
- Driving under the influence of alcohol and drugs
14. Forensic genetics
15. Crime Scene Investigation

16. Himanitarian forensic medicine: torture, aging the living
17. Medico-legal implications of telemedicine, robotics and artificial intelligence
18. Social and private insurance
19. Deontology and Code of Ethics

General Practice and Community Care (VL)
1. Introduction and general fundamentals of Occupational Medicine
2. Occupational toxicology and industrial hygiene: general concepts
3. Occupational diseases due to Physical risk factors
- Noise
- Hand-arm and whole-body vibration
- Ionizing radiations
- Manual handling of loads
- Video displays.
4. Occupational diseases due to Chemical risk factors
- Metals
- Solvents
- Others.
5. Occupational diseases due to biological risk factors
- Viruses
- Bacteria
- Protozoa
- Fungi.
6. Occupational diseases due to psychosocial risk factors

General Practice and Community Care (PP)
1. Introduction to Community Medicine
- Definition, scope, and importance
- Historical evolution and milestones in public health
2. Epidemiology
- Basic concepts in epidemiology: measures of disease frequency and association
- Study designs: descriptive, analytical, and experimental
3. Health System and Health Economics
- Structure and functions of health systems
- The Italian NHS and evolution of PHC
- Health policies and management
- Principles of health economics and their application in health care delivery
4. Prevention, environmental Health and Occupational Health
- Impact of environment on health: water, sanitation, air pollution
- Occupational health: workplace hazards, occupational diseases, and preventive measures
5. Maternal and Child Health
- Programs and policies for maternal and child health
- Nutrition, immunization, and family planning services
6. Public Health Nutrition
- Nutritional assessment and intervention programs
- Food security and nutritional epidemiology
7. Communicable and Non-Communicable Diseases
- Control and prevention strategies
- Surveillance systems and outbreak investigation
8. Mental Health
- Public health perspective on mental health issues
- Community-based approaches to mental health promotion
9. Health Education and Health Promotion
- Theories and models of health behavior change
- Strategies for effective health communication and education

General Practice and Community Care (UVG/AC)
Different clinical cases will be addressed, reflecting diseases already known to the students, with the aim of developing clinical orientation and reasoning.

Health Economics and Hospital Management (SS)
1. Case studies of health systems responses in both high-income and low-resource settings
2. High-risk versus general population strategies
3. Multimorbidity Prevention and Clinical Management
4. Cardiovascular Disease Prevention and Management in high- and low-income countries

5. Diabetes Prevention and Management in high- and low-income countries
6. Neurogenerative Disease Prevention
7. Psychiatric Disease Prevention
8. The role of economics in clinical medicine
- Should we fund all 'effective' treatments?
- Opportunity cost and clinical decision making
- Need for health versus need for health care
9. Taking a health system perspective to decision-making
- Value for money for health system investment
10. Introduction of Economic Evaluation Methods
- Cost-effectiveness and cost-benefit analyses
- Cost-utility analysis
11. Are clinical trials enough?
- Health Technology Assessment and clinical medicine
- Going beyond the trial
- Taking a lifetime perspective for clinical decisions
12. Case studies of health Economics
- Should we use age thresholds for cancer screening?
- Economics of avoidable hospitalisation
- Treating depression in clinical practice

Hygiene and Public Health International (MT)
1. International Trends in Mortality, Life expectancy and other public health indicators
2. Social Determinants of Health
3. The impact of the built environment
4. he life course approach to prevention
5. Prevention strategies
6. Public Health success stories and heroes
7. COVID: lessons learned
8. The impact of meaningful clinical trials: The Women Health Initiative
9. Guest lecture by an international public health expert (topic to be decided).
10. Students presentation (by group)

Metodi didattici

Forensic Medicine & Medical Ethics (FDM)
- Lectures, case analyses, reflective learning, tutorials in the Simulation Centre, autopsies

General Practice and Community Care (VL)
- Lectures and classroom discussions, assisted by presentations and handouts.

General Practice and Community Care (PP)
- Lectures and tutorials, practical sessions and "virtual experiences", group discussions and seminars.

General Practice and Community Care (UVG/AC)
- Lectures, group discussions and seminars

Health Economics and Hospital Management (SS)
- Lectures and case studies, all-class and small-team discussions, literature review and exercises

Hygiene and Public Health International (MT)
- Lectures and tutorials, in class discussions and exercises.

Modalità di verifica dell'apprendimento

Written examination aimed at verifying the actual degree of learning, the ability to critically revise the acquired knowledge and to explain it in an understandable manner, the ability to identify the elements characterising the course topics.

- 31 multiple-choice questions (MCQ).

- 2 points for each correct answer; 0 for an incorrect answer or an answer not given.

- The number of questions will be proportional to the number of CFUs in each module:

a. Hygiene and Public Health International (MT): 5 MCQ
b. Health Economics and Hospital Management (SS): 3 MCQ
c. Forensic Medicine (International) & Medical Ethics (FDM): 7 MCQ
d. General Practice and Community Care (VL): 3 MCQ
e. General Practice and Community Care (PP): 3 MCQ
f. General Practice and Community Care (UVG/AC): 10 MCQ

- To pass the examination, the student must correctly answer at least half of the questions for each module, according to the following thresholds:
a. Hygiene and Public Health International (MT): 3 MCQ
b. Health Economics and Hospital Management (SS): 2 MCQ
c. Forensic Medicine (International) & Medical Ethics (FDM): 4 MCQ
d. General Practice and Community Care (VL): 2 MCQ
e. General Practice and Community Care (PP): 2 MCQ
f. General Practice and Community Care (UVG/AC): 5 MCQ

In modules that include a student-led activity, this activity must be assessed and will contribute to passing the written exam. The grading criteria are defined as follows:
0 points – Activity not completed/Insufficient: The student has not met the minimum required standards. The demonstrated knowledge and skills are inadequate, with significant gaps that prevent a proper understanding of the topics covered.
1 point – Sufficient: The student has met the minimum requirements, showing a basic understanding of the topics. Their knowledge of the subject matter is limited.
2 points – Good: The student demonstrates a good understanding of the topics covered and possesses solid skills. They are able to apply their knowledge effectively and argue their points with some confidence.
3 points – Excellent: The student has achieved an excellent level of knowledge and fully masters the topics covered. They show expertise, accuracy, and the ability to explore topics in depth, along with a high degree of independence in applying their knowledge.

Testi di riferimento

Forensic Medicine & Medical Ethics (FDM)
- Slides and teaching material produced by the lecturer and uploaded on the e-learning platform.
- Knight B, Saukko PJ. Knight's Forensic Pathology. Fourth edition. CRC Press, Taylor & Francis Group; 2016 (per approfondire).
- Payne-James J, Simpson K, Shepherd R. Simpson's Forensic Medicine. 13th ed. Hodder Arnold; 2011. Accessed July 30, 2024 (per approfondire).
- Jonsen AR, Siegler M, Winslade WJ, Mishra R. Clinical Ethics: A Practical Approach to Ethical Decisions in Clinical Medicine. 9. ed. McGraw Hill; 2022 (per approfondire)

General Practice and Community Care (VL)
- LaDou J, Harrison R. Current Diagnosis & Treatment: Occupational and Environmental Medicine. McGraw-Hill Edizioni, 2021

General Practice and Community Care (PP)
- Ricciardi W & Boccia S. Igiene. Medicina preventiva. Sanità Pubblica. Idelson-Gnocchi, 2021.
- Ichiro Kawachi, Iain Lang, Walter Ricciardi. Oxford Handbook of Public Health Practice 4e Oxford University Press, 23 apr 2020 - 688 pagine

General Practice and Community Care (UVG/AC)
- Harrison, Principles of internal medicine. Mc Grow Hill, latest edition.

Health Economics and Hospital Management (SS)
- Slides and materials produced/distributed by the lecturer, including scientific articles focusing on the specific issue discussed in class

Hygiene and Public Health International (MT)
- Slides and materials produced/distributed by the lecturer, including scientific articles focusing on the specific issue discussed in class

Risultati di apprendimento specifici

Forensic Medicine (FDM)

- Knowledge and Understanding
To know the Italian legislation in medical matters, the main aspects of clinical forensic medicine, and forensic pathology.
- Applied Knowledge and Understanding
Provide a differential diagnosis based on specific macroscopic and microscopic examinations, also considering the data from the crime scene investigation and previous clinical data; participate in the study or discussion of forensic pathology cases, medical malpractice in civil and criminal contexts, healthcare risk management; learn the practical aspects of diagnostic tools in the forensic pathology field, understanding when to use them and how to perform them.
- Autonomy of Judgment
Use critical thinking to apply medical-biological knowledge in order to correctly develop, interpret, and apply legal regulations concerning medical practice.
- Communication Skills
Present and discuss their decisions with co-workers and various professionals in order to ensure transparency, accountability and enrich their point of view.
- Learning Ability
To independently and critically approach the study of forensic medicine for the acquisition of new knowledge and understanding of new phenomena.

General Practice and Community Care (VL)
- Knowledge and Understanding
Acquire knowledge on the basic principles of occupational medicine and methods to analyze occupational medicine issues.
- Applied Knowledge and Understanding
Understand the impact of the main occupational risk factors on workers' health, acquire knowledge for the diagnosis of common work related disorders, understand the relationship between the occupational medicine and health systems.
- Autonomy of Judgment
Acquire skills to independently evaluate specific occupational medicine issues and propose solutions.
- Communication Skills
Acquire skills to communicate and discuss general occupational medicine problems with un-expert people, co-workers and various professionals using an appropriate terminology.
- Learning Ability
To independently and critically update knowledge on occupational medicine topics through the study of scientific texts and publications.

General Practice and Community Care (PP)
- Knowledge and Understanding
Understand the principles and practices of community medicine, including disease prevention and health promotion strategies.
- Applied Knowledge and Understanding
Develop the ability to assess the health needs of populations and implement effective public health programs.
- Autonomy of Judgment
Acquire skills in epidemiological methods, data analysis, and the application of these methods in public health settings.
- Communication Skills
Learn to design, execute, and evaluate public health interventions, considering cultural, social, and economic factors.
- Learning Ability
Enhance their capability to communicate health information effectively to various audiences, including policymakers, health professionals, and the general public.

General Practice and Community Care (UVG/AC)
- Knowledge and Understanding
Navigate differential diagnosis in complex clinical cases
- Applied Knowledge and Understanding
Evaluate a therapeutic program in the context of multimorbidity, considering potential adverse drug effects and possible drug interactions
- Autonomy of Judgment
Orient themselves regarding clinical priorities in the use of diagnostic and therapeutic tools and resources. Establish an appropriate follow-up plan for specific cases, also assessing when and how to refer to different specialists.

Health Economics and Hospital Management (SS)
- Knowledge and Understanding
Analysis of factors driving variations in health care systems responses to major clinical and public health challenges

- Applied Knowledge and Understanding
Discussion of case studies based on major common chronic disease in both high-income and low-resource settings
- Autonomy of Judgment
Understanding basic economic evaluation methods to inform clinical and public health decision making
- Communication Skills
Open discussion of case studies in an interactive fashion (both all class and small teams)
- Learning Ability
Developing critical thinking to assess the available evidence and inform clinical and public health decision making

Hygiene and Public Health International (MT)
- Knowledge and Understanding
The role and importance of the social determinants of health. The built environment and Public Health
- Applied Knowledge and Understanding
How to analyze international pattern of disease and death. Indicator of the health of a population.
- Autonomy of Judgment
Utilize critical thinking and critical analyses of data to design and implement public health and prevention programs.
- Communication Skills
Learn how to communicate with experts, societal leaders, and the general population the results of analyses and scientific studies.
- Learning Ability
Becoming a life long learner

Medical Ethics (FDM)
- Knowledge and Understanding
To know and understand the deontological principles that characterise the professional autonomy and responsibility of the physician.
- Applied Knowledge and Understanding
Deciding, planning and implementing effective and safe care interventions that comply with quality standards and are based on scientific evidence, respecting legal and ethical responsibilities, with a personalised and integrated approach that considers individual and community needs, thus improving the health status and general well-being of the people involved.
- Autonomy of Judgment
Use critical thinking to understand the phenomena that characterise the reality of care and deontological reflection.
- Communication Skills
Presenting and discussing one's decisions with colleagues and other professionals, even in situations of moral distress, to ensure transparency, accountability and enrich one's point of view, contributing to a collaborative and understanding working environment.
- Learning Ability
Deal autonomously and critically with the study of deontology for the acquisition of new knowledge and understanding of new phenomena

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	26	MED/44, SECS-P/07, MED/42, MED/43, MED/43, MED/09, MED/09, MED/42, MED/09

Stampa del 16/10/2026

CLINICAL MEDICINE (8) [1204602]

Offerta didattica a.a. 2026/2027

Docenti: FRANCESCO TRAVAGLINO, MARCO CARICATO, ALESSIA MATTEI, GABRIELLA TERESA CAPOLUPO, BIAGIO ZAMPOGNA, FABIO PILATO, ANDREA PALERMO, ALESSANDRO STRUMIA, FRANCESCO MOTOLESE

Periodo: Ciclo Annuale Unico

Obiettivi formativi

1. Course Rationale
The Integrated Course in Emergency and Acute Care Medicine aims to provide final-year medical students with competencies in the assessment and initial management of acute and life-threatening conditions in emergency and critical care settings.

2. Educational Objectives
The course aims to enable students to:
• Recognize critical illness and clinical instability
• Apply structured assessment models (ABCDE approach)
• Develop prioritized differential diagnoses
• Interpret laboratory and instrumental findings in emergency contexts
• Initiate evidence-based stabilization strategies
• Identify indications for urgent surgical or specialist intervention
• Demonstrate effective communication in acute care scenarios

The course reflects the real-world complexity of emergency medicine, where rapid clinical reasoning, prioritization, and multidisciplinary collaboration are essential.
Teaching is strongly clinically oriented and structured around case-based learning, simulating decision-making processes typical of Emergency Departments, operating theatres, and Intensive Care Units.
Scientific Disciplinary Areas: Emergency Medicine, Anesthesiology and Critical Care, General Surgery, Orthopedics and Traumatology, Neurology, Endocrinology

Prerequisiti

Prerequisites
Students are expected to have completed and passed courses in:
- Internal Medicine
- General Surgery
- Anatomy
- Pathophysiology
- Pharmacology
- Neurology
- Cardiology
- Pneumology
- Orthopedics
- Endocrinology

Contenuti del corso

Course Content by Discipline

1 Emergency Medicine
Topics
• Introduction to Emergency Medicine: the real-world framework
• First approach to the patient in the Emergency Department
• Acute Respiratory Failure
• Non-Invasive Mechanical Ventilation in Emergency Medicine
• Hypertensive emergencies
• Acute Renal Failure
• Approach to abdominal pain
• Sepsis and septic shock
• Shock states

• Chest pain and arrhythmias
• Acute heart failure
• Syncope
• Coma
• Acute poisoning and burns
• Clinical case discussions
Educational Focus
Emphasis on rapid assessment, differential diagnosis, stabilization, and early management strategies.

2 Anesthesiology and Critical Care
Topics
• Introduction to Anesthesia and Intensive Care
• Approach to the acutely deteriorating patient
• Acid-base balance in the ICU
• Respiratory failure and ventilatory support
• Vasoactive drugs
• Hemodynamic monitoring
• Sepsis
• Cardiogenic and hemorrhagic shock
• Sedation and analgesia
• General and regional anesthesia
• Preoperative evaluation
• Pain therapy
• Clinical scenarios
Educational Focus
Physiological interpretation of critical illness, organ support strategies, and perioperative risk assessment.

3 General Surgery
Topics
• The surgical perspective in the Emergency Room
• Indications for surgical consultation
• Chest pain: surgical causes
• Chest trauma
• Abdominal wall pathology and hernias
• Acute abdomen
• Hepatobiliary emergencies
• Acute pancreatitis
• Intra-abdominal infections
• Bowel obstruction
• Gastrointestinal bleeding
• Abdominal trauma
Educational Focus
Identification of surgical emergencies and timing of operative intervention.

4 Orthopedics and Traumatology
Topics
• Spinal injuries
• Orthopedic emergencies practical training
• Septic arthritis and osteomyelitis
• Compartment syndrome
• Open fractures
• Joint dislocations
Educational Focus
Recognition of limb- and life-threatening orthopedic conditions and initial management principles.

5 Neurology
Topics
• Acute cerebral ischemia management
• Acute headache
• Acute myelopathy
• Status epilepticus
• Myasthenic crisis
• Guillain-Barré syndrome
Educational Focus
Time-dependent neurological emergencies.

6 Endocrinology
Topics
• Hypocalcemia and hypercalcemia

• Hyperglycemia
• Diabetic ketoacidosis
• Hypoglycemia
Educational Focus
Recognition and management of metabolic emergencies

Metodi didattici

Teaching Methods
The course is delivered through:
• Lectures with strong clinical orientation
• Case-based discussions
• Interactive analysis of clinical scenarios
• Multidisciplinary sessions
• Interpretation workshops (ECG, ABG, laboratory, imaging)
Teaching emphasizes integration between disciplines and simulation of real-life emergency decision-making.

Modalità di verifica dell'apprendimento

Assessment Methods

Assessment consists of a final oral examination conducted by a multidisciplinary commission.

The examination is based on structured discussion of clinical cases.
Students are required to:
• Analyze a clinical scenario
• Develop diagnostic reasoning
• Propose appropriate investigations
• Formulate an initial management plan
• Justify clinical decisions
Evaluation criteria include:
• Depth of knowledge
• Clinical reasoning ability
• Integration of multidisciplinary content
• Decision-making prioritization
• Clarity and coherence of presentation

Testi di riferimento

Recommended Textbooks and Reference Guidelines

1 Core Textbooks
The following textbooks are recommended as reference material for the Integrated Course:
• Tintinalli's Emergency Medicine. McGraw-Hill Education.
Comprehensive reference text covering all major emergency conditions.
• Rosen's Emergency Medicine: Concepts and Clinical Practice. Elsevier.
Advanced reference for pathophysiology and clinical decision-making.
• Miller's Anesthesia. Elsevier.
Reference for perioperative management and anesthesia principles.
• Oh's Intensive Care Manual. Elsevier.
Practical guide to critical care management.
• Sabiston Textbook of Surgery. Elsevier.
Reference for surgical emergencies.
• Rockwood and Green's Fractures in Adults. Wolters Kluwer.
Reference for orthopedic trauma.
• Adams and Victor's Principles of Neurology. McGraw-Hill Education.
Reference for neurological emergencies.
• Williams Textbook of Endocrinology. Elsevier.
Reference for endocrine emergencies.
Students are encouraged to consult updated editions where available.

2 International Guidelines and Position Statements
Teaching and assessment are aligned with the most recent international guidelines, including but not limited to:

Emergency Medicine & Resuscitation
• European Resuscitation Council (ERC) Guidelines for Resuscitation (latest edition).
• American Heart Association (AHA) Guidelines for CPR and ECC.
• European Society of Cardiology (ESC) Guidelines for:
o Acute Coronary Syndromes
o Acute and Chronic Heart Failure

o Arrhythmias

Sepsis and Shock
• Surviving Sepsis Campaign International Guidelines for the Management of Sepsis and Septic Shock.

Critical Care
• European Society of Intensive Care Medicine (ESICM) Clinical Practice Guidelines.
• Society of Critical Care Medicine (SCCM) Guidelines.

Surgery
• World Society of Emergency Surgery (WSES) Guidelines for:
o Acute appendicitis
o Acute cholecystitis
o Intra-abdominal infections
o Trauma
• Advanced Trauma Life Support (ATLS®) principles.

Orthopedics and Trauma
• AO Foundation Trauma guidelines.

Neurology
• European Stroke Organisation (ESO) Guidelines for Acute Ischemic Stroke.
• American Academy of Neurology (AAN) Practice Guidelines.

Endocrinology
• American Diabetes Association (ADA) Standards of Medical Care in Diabetes.
• Endocrine Society Clinical Practice Guidelines.

3 Evidence-Based Approach
Students are expected to:
• Refer to updated international guidelines
• Apply evidence-based medicine principles
• Integrate guideline recommendations into clinical reasoning during case discussion

Guidelines discussed during lectures will refer to the most recent available versions at the time of teaching.

Risultati di apprendimento specifici

Educational Objectives

The course aims to enable students to:
• Recognize critical illness and clinical instability
• Apply structured assessment models (ABCDE approach)
• Develop prioritized differential diagnoses
• Interpret laboratory and instrumental findings in emergency contexts
• Initiate evidence-based stabilization strategies
• Identify indications for urgent surgical or specialist intervention
• Demonstrate effective communication in acute care scenarios

Learning Outcomes
At the end of the course, the student will demonstrate:

A. Knowledge and Understanding
The student will be able to:
• Describe the pathophysiology of major acute medical and surgical emergencies
• Explain diagnostic algorithms in emergency medicine
• Discuss principles of airway management, hemodynamic stabilization, and basic acute care pharmacology

B. Applying Knowledge and Understanding
The student will be able to:
• Apply structured approaches to the unstable patient
• Interpret ECGs, arterial blood gases, laboratory data, and basic imaging in acute care
• Formulate diagnostic hypotheses based on clinical presentation
• Propose initial management plans for acute conditions

C. Making Judgements
The student will be able to:
• Prioritize interventions in time-sensitive scenarios
• Identify red flags and life-threatening complications

• Recognize when multidisciplinary involvement is required

D. Communication Skills
The student will be able to:
• Present clinical cases in a structured and logical manner
• Communicate diagnostic reasoning clearly
• Interact appropriately within a multidisciplinary framework

E. Learning Skills
The student will demonstrate:
• Capacity for autonomous clinical reasoning
• Ability to update knowledge according to current guidelines
• Awareness of professional responsibility in emergency contexts

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	24	MED/13, MED/18, MED/18, MED/41, MED/41, MED/26, MED/33, MED/09, MED/18, MED/41, MED/26, MED/33

Stampa del 16/10/2026

Clinical Surgery (1) [1204308]

Offerta didattica a.a. 2026/2027

Docenti: NUNZIO MONTELIONE, RAFFAELE BARBATO, PIERFILIPPO CRUCITTI, FILIPPO LONGO

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
The aim of the integrated course is to provide students with a solid foundation for an integrated understanding of cardio-thoracic and vascular pathophysiology.
The course focuses on understanding the mechanisms underlying diseases of the heart and great vessels, as well as the most common thoracic and esophageal conditions. It covers genetic and non-genetic risk factors, clinical presentation, diagnostic procedures (including imaging), and available therapeutic strategies (pharmacological, surgical, and/or endovascular).
In particular, the course aims to offer students an integrated and multidisciplinary approach to managing cardio-thoracic and vascular patients, both in elective and emergency settings.

Prerequisiti
According to the Regulations of the Degree Program, prerequisites required are: General Pathology and Pathophysiology & Pharmacology, Anatomy, Physiology

Contenuti del corso
The program will be divided into lectures focusing on specific topics in Vascular Surgery, Cardiac Surgery, and Thoracic Surgery, along with integrated sessions where cardiovascular and thoracic pathologies will be addressed in a multidisciplinary manner.
The lessons will be enhanced by the presentation of clinical cases, and will include anonymous learning assessments through real-time classroom quizzes using Mentimeter.

For each lesson the following aspects will be addressed:
1. Risk factors predisposing to cardiovascular and thoracic diseases
2. Clinical presentation of cardiovascular and thoracic diseases in elective and urgent setting
3. Main diagnostic procedures in urgent setting
4. How to interpret the radiological and biochemical analytical findings specific for each pathology
5. Main predictive and prognostic factors of cardiovascular and thoracic pathologies
6. Principles of treatment and main guidelines for daily clinical practice
7. Principles of an integrated approach in cardiovascular and thoracic pathologies
8. New frontiers in the treatment of cardiovascular and thoracic pathologies: minimally invasive and biological therapy
9. Interpretation of clinical trials and principles of clinical trial designs

Programme
The program will be divided into lectures focusing on specific topics in Vascular Surgery, Cardiac Surgery, and Thoracic Surgery, along with integrated sessions where cardiovascular and thoracic pathologies will be addressed in a multidisciplinary manner.
The lessons will be enhanced by the presentation of clinical cases, and will include anonymous learning assessments through real-time classroom quizzes using Mentimeter.

For each lesson the following aspects will be addressed:
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4. How to interpret the radiological and biochemical analytical findings specific for each pathology
5. Main predictive and prognostic factors of cardiovascular and thoracic pathologies
6. Principles of treatment and main guidelines for daily clinical practice
7. Principles of an integrated approach in cardiovascular and thoracic pathologies
8. New frontiers in the treatment of cardiovascular and thoracic pathologies: minimally invasive and biological therapy
9. Interpretation of clinical trials and principles of clinical trial designs

VASCULAR SURGERY
Acute limb ischemia and chronic obstructive arteriopathies of the limbs (including diabetic arteriopathy and foot infection, Buerger's disease).
Acute and chronic cerebro-vascular insufficiency (including Subclavian Steal Syndrome).
Acute aortic syndrome and aortic dissections.
Thoraco-abdominal aortic aneurysm, ruptured abdominal aortic aneurysm (rAAA) and Abdominal compartment syndrome (ACS).
Vascular trauma (including vascular access complication and Blunt Thoracic Aortic Injury -BTAI).
Acute and chronic celiac-mesenteric insufficiency.
Peripheral and visceral aneurysms.
Venous thromboembolic disease and pulmonary embolism.
Thoracic outlet syndrome.

CARDIAC SURGERY
Cardiopulmonary Bypass: Fundamental principles of extracorporeal circulation and its primary clinical applications.
Coronary Artery Disease: Pathophysiology, clinical features, diagnostic work-up, surgical indications, coronary artery bypass grafting (CABG), and conduit selection.
Mitral Valve Disease: Pathophysiology, clinical presentation, diagnosis, surgical indications, valve replacement (including prosthesis selection), and basic principles of valve repair.
Aortic Valve Disease: Pathophysiology, clinical presentation, diagnosis, surgical indications, valve replacement (including prosthesis selection), and basic principles of valve repair.
Tricuspid Valve disease: Pathophysiology, clinical presentation, diagnosis, surgical indications, valve replacement (including prosthesis selection), and basic principles of valve repair.
Aneurysms of thoracic aorta and aortic dissection.
Pathophysiology, clinical presentation, diagnosis, surgical indications, and basic principles of surgical therapy.
Heart Failure: Pathophysiology, clinical features, diagnosis, indications for mechanical circulatory support (short- and long-term VADs – ventricular assistance devices), and cardiac transplantation.

THORACIC SURGERY
Lung Diseases: Pathophysiology, clinical features, and surgical approaches to conditions such as lung cancer, pulmonary infections, and interstitial lung diseases.
Tracheal and Bronchial Disorders: Etiology, clinical presentation, and surgical management of tracheal stenosis, bronchiectasis, and foreign body aspiration.
Pleural Diseases: Understanding pleural effusions, pneumothorax, pleuritis, and their surgical interventions.
Esophageal Pathologies: Gastroesophageal reflux disease (GERD), Gastroesophageal Junction Disorders: Hiatal hernias, Barrett's esophagus, and related surgical considerations, Achalasia, Esophageal cancer, and surgical techniques such as esophagectomy.
Mediastinal Conditions: Thymic tumors, mediastinal cysts, and other mediastinal masses, including their diagnostic evaluation and surgical treatment.
Thoracic Emergencies

Metodi didattici
The course content will be delivered through an integrated approach combining lectures, problem-based learning (PBL), case-based learning (CBL), and interactive sessions supported by relevant clinical documentation (e.g., blood tests, ECG, echocardiography, ultrasonography, CT scans), for a total of 40 hours.
Following this, students will begin their clinical practice at the Polyclinic, within the Cardiac Surgery, Vascular Surgery, and Thoracic Surgery units, including outpatient clinics. The internship, worth 4 CFU, is designed to provide students with a comprehensive overview of Cardiovascular and thoracic medical and/or surgical conditions, along with practical skills aligned with the clinical competencies outlined above.
Students will be divided into small groups and assigned to Tutors, who will guide them through clinical procedures and instrumental examinations. Tutors will supervise and assist students during hands-on activities. Active participation in clinical discussions and multidisciplinary case reviews will be expected.

Modalità di verifica dell'apprendimento
Student learning will be assessed through a written examination and an oral examination, both to be undertaken within the same examination session.
Students must pass the written examination in order to be admitted to the oral examination.
To pass the oral examination, students must demonstrate to the examination board sufficient knowledge in each of the three disciplinary areas included in the integrated course.
The final grade is composed of 25% from the written examination and 75% from the oral examination.

The written examination will include questions from all course modules and will focus on the pathophysiology and critical conditions encountered in cardiac, vascular, and thoracic surgery. The test will present clinical scenarios similar to those discussed during lectures and clinical placements, requiring clinical reasoning, critical thinking, and the formulation of appropriate diagnostic pathways.

Students will be expected to demonstrate an understanding of the biological mechanisms underlying the

development and progression of cardiovascular and thoracic diseases, including emergency conditions, taking into account genetic and environmental factors, pathophysiology, and clinical evolution. Knowledge of diagnostic imaging principles and the main radiological techniques used in cardio-thoracic and vascular diseases will also be assessed.

Clinical cases will evaluate the student's ability to coordinate diagnostic and therapeutic approaches in patients with cardiovascular and thoracic diseases.

The oral examination consists of the discussion of a clinical case and/or questions covering all course modules. Students will be required to demonstrate a thorough understanding of disease progression, identify the appropriate diagnostic approach, and explain the therapeutic strategies used in the management of cardio-thoracic and vascular diseases.
The final assessment will also take into account feedback from clinical tutors as a training requirement that does not directly contribute to the numerical final grade.

Assessment Criteria and Final Grade

1. Written Examination

The written examination consists of 30 multiple-choice questions to be completed within 45 minutes.

Distribution of questions:

• 14 questions in Cardiac Surgery

• 8 questions in Vascular Surgery

• 8 questions in Thoracic Surgery

Each correct answer is worth 1 point. Incorrect or unanswered questions receive 0 points.

To pass the written examination, students must correctly answer at least half of the questions in each discipline:

• Cardiac Surgery: at least 7/14

• Vascular Surgery: at least 4/8

• Thoracic Surgery: at least 4/8

The score obtained in the written examination contributes 25% to the final grade.

2. Oral Examination

The oral examination is mandatory, takes place on the same day as the written examination, and accounts for 75% of the final grade.

It consists of the discussion of clinical cases and/or questions related to all course modules, assessing the student's ability to apply theoretical knowledge to real clinical situations, including clinical reasoning and decision-making skills.

To pass the oral examination, students must achieve a satisfactory performance in all three disciplines of the integrated course.

Testi di riferimento

Texts and other learning materials
Slides of the lessons uploaded to e-learning on the day of the lesson.
Lecturers will recommend original and review articles on specific and interesting topics during the course.

Suggested Textbooks

VASCULAR SURGERY:
- Rutherford's Vascular Surgery and Endovascular Therapy, 2-Volume Set, 9th Ed., Elsevier (textbook). By Anton N Sidawy and Bruce A Perler. ISBN Number 9780323427913
- Vascular and Endovascular Surgery: A Comprehensive Review, 9th Ed., Elsevier (textbook). By Wesley S. Moore. ISBN Number 9780323480116
- Comprehensive Vascular and Endovascular Surgery - 2nd Ed., Mosby Ltd. (textbook). By John W. Hallett, Jr.,

Joseph L. Mills, Jonothan Earnshaw, Jim A. Reekers, and Thom Rooke. ISBN Number 9780323057264
- Master Techniques in Surgery: Cardiac Surgery by Frederick Grover and Michael J. Mack | 10 Mar 2016 Wolters Kluwer

CARDIAC SURGERY
- Master Techniques in Surgery: Cardiac Surgery* – Frederick Grover & Michael J. Mack (Wolters Kluwer, 2016)
Suggested Websites:
• www.ctsnet.org
• www.eacts.org

THORACIC SURGERY
-European Society of Thoracic Surgery Text Book
Link: http://www.ests.org/textbook/
-Richard W. Light. PLEURAL DISEASES (2013) Wolters Kluwer Edts. 7th Edition
Link: https://shop.lww.com/Pleural-Diseases/p/9781451175998)
-Ernest E. Moore, David Feliciano and Kenneth L.Mattox “TRAUMA” (2017) Mc Graw Hill Edts. 8th Edition
Link: https://www.mhprofessional.com/9781259860676-usa-trauma-eighth-edition-group

Suggested websites:
https://www.ctsnet.org/techniques/thoracic
http://www.asvide.com
http://www.nccn.org/guidelines
http:// www.aiom.it/linee-guida-aiom-2024-neoplasie-del-polmone/

Risultati di apprendimento specifici
Clinical Surgery 1 is an integrated course encompassing Vascular, Cardiac, and Thoracic Surgery, with a focus on both elective and urgent care settings. The course is designed to address these disciplines in a multidisciplinary context, promoting the integration of diverse clinical perspectives in the prompt diagnosis and management—both medical and surgical—of the conditions studied.

Students are expected to acquire comprehensive knowledge and develop practical experience through a combination of formal lectures, interactive seminars, problem-based and case-based learning, as well as hands-on clinical sessions conducted at the bedside or in outpatient settings. By the end of the course, students should demonstrate an improved ability to assess and manage vascular, cardiac, and thoracic pathologies using a collaborative and patient-centered approach.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	7	MED/21, MED/22, MED/23, MED/23, MED/21, MED/22, MED/23

Stampa del 16/10/2026

Clinical Surgery (2) [1204313]

Offerta didattica a.a. 2026/2027

Docenti: MARCO CARICATO, GABRIELLA TERESA CAPOLUPO, FRANCESCO ESPERTO, ROCCO PAPALIA

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi
The Clinical Surgery 2 course will cover:
the general fundamentals of surgical practice, describing the main technological innovations of recent years; the approach to the surgical patient, with particular attention to preparation for surgery and the postoperative course; and the principles of surgical oncology;
the pathophysiology, diagnosis, and treatment of the main surgical disorders of the digestive system, with a section dedicated to inflammatory bowel diseases and their surgical treatment;
the main aspects of endocrine and metabolic surgery.

Prerequisiti
There are no prerequisites. However, an adequate knowledge of normal human anatomy is required.

Contenuti del corso
The CS2 course covers the general principles of surgery, perioperative management of the surgical patient, cross-cutting topics such as safety, infections, sepsis, nutrition, ERAS and communication, together with the basics of surgical oncology and minimally invasive/robotic surgery. The core of the course is digestive surgery, including the oesophagus, stomach and duodenum, biliary tract, liver, pancreas, colon and rectum, small bowel, appendix, inflammatory bowel disease, proctology and stomas. The course also includes endocrine and metabolic surgery, covering thyroid, parathyroid and adrenal diseases, endocrine tumours, and bariatric/metabolic surgery.

Metodi didattici
Ex-cathedra Lectures
Students address all the General Surgery topics that constitute the core curriculum of the course. Both the instructor and the student conduct a critical review of the relevant aspects of surgically relevant pathologies through interactive discussions of clinical cases regarding clinical management, principles of surgical therapy, and the main post-surgical syndromes.

Modalità di verifica dell'apprendimento
Lesame integrato finale verrà svolto al termine del corso in modalità esclusivamente orale, e riguarderà tutti gli argomenti previsti dal programma del corso.
La valutazione sarà espressa in trentesimi.

Testi di riferimento
Sabiston Textbook of Surgery, 22nd Edition
The Biological Basis of Modern Surgical Practice
Author: Douglas Scott Tyler
Date of Publication: 09/2025

Risultati di apprendimento specifici
Knowledge of the main pathologies of interest to General and Specialistic Surgery with particular regard to the diagnostic-therapeutic pathway.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale	Laurea Magistrale in Medicine and	comune	7	MED/18, MED/18,

Ciclo Unico 6 anni	Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	MED/24, MED/18, MED/18, MED/24

Stampa del 16/10/2026

Diagnostic (1) [1204309]

Offerta didattica a.a. 2026/2027

Docenti: GIUSEPPE PERRONE, CARLO AUGUSTO MALLIO, LORENZO NIBID

Periodo: Primo Ciclo Semestrale

Syllabus non pubblicato dal Docente.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	4	ING-IND/34, MED/36, MED/08

Stampa del 16/10/2026

Diagnostics (2) [1204314]

Offerta didattica a.a. 2026/2027

Docenti: CARLO AUGUSTO MALLIO, CORRADO MINIMO

Periodo: Secondo Ciclo Semestrale

Syllabus non pubblicato dal Docente.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	3	MED/36, MED/08

Stampa del 16/10/2026

Diagnostics (3) [1204405]

Offerta didattica a.a. 2026/2027

Docenti: GIUSEPPE PERRONE, CARLO AUGUSTO MALLIO, ALESSIA CAPOZZI

Periodo: Primo Ciclo Semestrale

Syllabus non pubblicato dal Docente.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	3	MED/36, MED/08

Stampa del 16/10/2026

Diagnostics (4) [1204408]

Offerta didattica a.a. 2026/2027

Docenti: CARLO AUGUSTO MALLIO, STEFANO SIOLETIC

Periodo: Secondo Ciclo Semestrale

Syllabus non pubblicato dal Docente.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	3	MED/36, MED/08

Stampa del 16/10/2026

Haematology, Infectious Diseases & Rheumatology [1204407]

Offerta didattica a.a. 2026/2027

Docenti: LUIGI RIGACCI, LUCA NAVARINI, ROBERTO CAUDA, ROBERTO GIACOMELLI, GIORGIO MINOTTI, OMBRETTA ANNIBALI

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi

Hematology:
Hematology is the branch of Internal Medicine that deals with blood and the organs that make up the hematopoietic system. The hematologist studies the causes, diagnosis, treatment, prognosis and prevention of diseases of the blood and hematopoietic organs. This course teaches the scientific knowledge and the clinical training trying to integrate them as much as possible into a practical view of professional activity. Students will attain a good knowledge of physiology, cytology and histology of the hematopoietic system and pathology, histopathology, epidemiology, diagnostics, clinical and therapy of disorders of the hematopoietic system.
Hematology is a discipline with many cross-links with other specialties and needs close collaboration with the laboratory, traditional and nuclear radiology, pathology, pharmacology radiotherapy, and surgery. In addition, hematology is a constantly growing discipline both diagnostically and therapeutically. During the course, therefore, all the novelties in instrumental diagnostics (for staging and re-staging of disease) as well as histologic diagnostics will be addressed and all the therapeutic novelties, both in terms of new target molecules and immunotherapy, will be addressed.
However, in a reality where we are moving toward (super-specialization), it will be necessary to maintain an overview of hematology by seeking links within hematology itself and with other specialties.

Infectious Diseases:
• The course aims to provide an understanding of the main diseases caused by infectious agents through an examination of their pathogenic mechanisms and clinical manifestations.In particular, starting from the causative pathogen, the clinical characteristics of individual infectious diseases will be defined, with a particular focus on pathophysiological mechanisms, specific epidemiological features, characteristic clinical presentations, and the most innovative diagnostic, therapeutic and preventive approaches. Particular attention will be reserved for emerging and re-emerging infectious diseases.
• Knowledge of the characteristics of infectious diseases will enable their prompt recognition, proper management, and the selection of the most effective and up-to-date diagnostic and therapeutic strategies. Furthermore, it will provide the basis, from a public health perspective, for effective prevention measures aimed at stopping their spread.

Rheumatology
The course aims to provide students with a comprehensive understanding of the main allergic, immunological, and rheumatological diseases, through the integrated analysis of their pathogenic mechanisms, clinical manifestations, diagnostic pathways, and therapeutic approaches. Particular emphasis will be placed on the role of the immune system in health and disease, including mechanisms of hypersensitivity, autoimmunity, autoinflammation, immune deficiency, and chronic systemic inflammation.
The course will define the clinical features of the major allergic disorders, primary immunodeficiencies, systemic autoimmune diseases, vasculitides, autoinflammatory syndromes, inflammatory arthritides, connective tissue diseases, and other relevant rheumatological conditions. For each disease or disease group, attention will be devoted to pathophysiological mechanisms, epidemiological and risk factors, characteristic clinical presentations, organ involvement, differential diagnosis, and the appropriate use of laboratory, imaging, and instrumental investigations.
A further objective of the course is to enable students to recognize the clinical patterns suggestive of immune-mediated and rheumatological diseases, to understand their potential systemic complications, and to acquire the principles of patient-centered management. Diagnostic and therapeutic strategies will be discussed with reference to current standards of care, including conventional treatments, biologic and targeted therapies, allergen-specific immunotherapy, preventive measures, and long-term monitoring.

Prerequisiti

In order to follow this course and to profit from the proposed program, students must possess a solid background in basic human anatomy, physiology and in general pathology. Futhermor, students enrolling in this course must also be knowledgeable in biology, chemistry, physics and in mathematics to grant integration of principles across all preclinical sciences.

Contenuti del corso
I. Introduction to Hematology:

a. Key Concepts
b. Terminology
c. Signs and Symptoms in Hematology
d. Peripheral Blood and Bone Marrow Smear
e. Basics of Cytogenetics, Immunophenotype, and Molecular Biology
f. Lymphatic System
g. Principles of Hematopoiesis:
i. Stem Cell
ii. Erythropoiesis
iii. Granulocytopoiesis
iv. Thrombocytopoiesis
v. Lymphocytopoiesis

II. Anemias:

a. Deficiency Anemias
b. Anemias of Chronic Diseases
c. Autoimmune Hemolytic Anemias
d. Anemias Due to Defects in the Erythrocyte Membrane Protein
e. Hereditary Anemias
f. Microangiopathic Hemolytic Anemias

III. Cytopenias, Aplasias, and Similar Disorders:

a. Aplastic Anemia
b. Paroxysmal nocturnal hemoglobinuria
c. Thrombocytopenia
d. Neutropenia

IV. Hemostasis, coagulation, and thromboembolism:

a. Physiology and pathophysiology of hemostasis and coagulation
b. Thrombocytopathies
c. Coagulopathies
d. Disseminated intravascular coagulation

V. Myeloid and lymphoid tissue neoplasms:

a. Myeloid neoplasms
i. Acute myeloid leukemia
ii. Acute promyelocytic leukemia
iii. Chronic myeloid leukemia
iv. Chronic pH-negative myeloproliferative disorders
v. Myelodysplastic syndromes
b. Lymphoid neoplasms
i. Acute lymphoid leukemias
ii. Chronic lymphoid leukemias
iii. Non-extranodal non-Hodgkin's lymphomas and cutaneous lymphomas
iv. Extranodal Non-Hodgkin Lymphomas and Special Forms
v. Classical Hodgkin Lymphoma
vi. Nodular Lymphocyte-Predominant Hodgkin Lymphoma
vii. Paraproteinemias

VI. Commonly Used Therapies in Hematology and Special Conditions:

a. Transfusion Therapy
b. Hematopoietic Stem Cell Autotransplantation
c. Hematopoietic Stem Cell Allotransplantation
d. Infection in Neutropenic Immunocompromised Patients
e. Emergencies in Hematology

Programme of the course in infectious diseases
Blood stream infections (BSI), Endocarditis, Meningitis, Encephalitis, Pneumonia, Malaria, Typhus, Cholera,

Tuberculosis, Influenza, Diarrhea, Hepatitis, Parotitis, Amoebiasis, Tetanus, Botulism, Herpetic infections, infectious mononucleosis, CMV, Leishmaniasis, HIV/AIDS, Nosocomial Infections, COVID-19.

Rheumatology

Systemic lupus erythematosus
Antiphospholipid antibody syndrome
Sjögren's disease
Systemic sclerosis
Idiopathic inflammatory myopathies
Mixed connective tissue disease
Undifferentiated connective tissue disease
IgG4-related disease
Giant cell arteritis
Takayasu arteritis
Kawasaki disease
Polyarteritis nodosa
EGPA
GPA
MPA
Relapsing polychondritis
Primary angiitis of the CNS
Cogan's syndrome
Cryoglobulinemia
IgA vasculitis
Behçet's disease
Rheumatoid arthritis
Axial spondyloarthritis
Psoriatic arthritis
Reactive arthritis
IBD-associated spondyloarthritis
Microcrystalline arthritides
Septic arthritis
DISH
CRPS
Fibromyalgia
Adult-onset Still's disease
Monogenic and polygenic autoinflammatory diseases
Polymyalgia rheumatica
RS3PE
Osteoarthritis
Sarcoidosis
Allergic diseases: allergic rhinitis, atopic dermatitis, allergic asthma, drug allergies, hymenoptera venom allergy, allergy diagnostics, urticaria/angioedema
Primary immunodeficiencies

Metodi didattici

The course combines lectures and seminars with a clinical part. Students will follow clinical case discussions and multidisciplinary meetings by being made aware of a schedule of periodic meetings.
The particularity of hematology patients with the limitations of access to isolation rooms imposes a very small group rotation for ward access while for Day Hospital and outpatient activities attendance will be freer and in any case regulated by an internship calendar.
Also in small groups will have access to evaluation of peripheral blood smears.
Lectures and seminars, lasting about 3 weeks, are intended to provide the theoretical foundation for students. During these lectures, active participation by students with questions and requests for clarification or insights is encouraged. The professor is responsible for stimulating this methodology in such a way that the lecture is not just a passive moment but instead becomes a time for discussion and, above all, for learning methods of approaching diagnostics and clinical problem solving. The professor should also stimulate the reading of articles that are not overly specialized and that help the student to orient himself or herself in the main innovations of this specialty. The presentation of clinical cases with diagnostic hypotheses and the subsequent development of the various laboratory or strumenatal steps to diagnosis represent an effective methodology.

Modalità di verifica dell'apprendimento

The final exam will take place on completion of the class, in accordance with the sessions scheduled in the academic calendar. Knowledge acquired and the ability to put such knowledge into practice for each topic learnt will be evaluated with a written test. Only students who pass written tests will be admitted to the final oral examination. The written test will invoolve 30 multiple-choice questions with only one true. The final oral interview will consist in a

clinical case presentation related to all the diseases covered in CM2. Students need to demonstrate adequate levels of whole-round undestanding of course materials alongside suitable communication and judgement skills.
The subjects involved in the written test are the following:
-Haematology
-Pharmacology
-Infectious Diseases
-Rheumathology

After the written test students can produce a maximum score of 30/30. The oral examination can add to, or take away, up to three points from the grade scored in the written test. Cum laude may be recognized to students in the final evaluation only in case of both an excellent written and oral performance.

Testi di riferimento

Hematology:
-Williams hematology
Editore: McGraw-Hill Education
-Williams Manual of Hematology, Tenth Edition
McGraw-Hill Education, 2

Infectious disease:
• Presentation of the lecturer's slides published on the e-learning platform.
• Harrison's Principles of Internal Medicine (Vol. 1-2), 22nd Edition

Rheumatology
Presentation of the lecturer's slides published on the e-learning platform, Harrison's Principles of Internal Medicine (Vol. 1-2), 22nd Edition, EULAR textbook on rheumatic diseases

Risultati di apprendimento specifici

Hematology
By the end of the course, students should be familiar with:
- hematology specific terminology
- the physiology of the hematopoietic system
- the diseases of the hematopoietic system
With these elements, students should be able to orient themselves on the diagnostic procedure of hematologic disorders, the prognosis of hematologic disorders, and general therapeutic guidelines.
The main aim is to learn to communicate these complex patterns in a clear and confident manner to physicians and of course to patients. Communication skills are a vital component of lectures and syllabus, it is important to use the same scientific language but also to be able to explain in a way that is understandable to patients. During the lessons students will have to acquire the necessary tools to critically address the practical part to be carried out in outpatients clinics and in hospital wards.
Students are expected to have maximum interaction during the lectures but especially during the practical part. The student should definitely learn by watching the behavior and reasoning of the tutors but should, at the same time, ask questions or propose solutions to problems a patient may have encountered.
Students must evaluate efficient strategies to treat a patients after diagnosis and discuss with tutors of it according to the current evidence-based guidelines.
They must define the correct follow-up to be applied to patients based on the pathology they are suffering from including timing and required diagnostic tools. In addition, they must be proficient in making proper medical records and must be aware that every medical procedure must be properly recorded.

Rheumatology
By the end of the course, students should be able to integrate clinical reasoning with immunopathological knowledge, identify conditions requiring timely specialist referral, and understand the impact of allergic, immunological, and rheumatological diseases on patients' quality of life, prognosis, and overall health. Students will also be expected to acquire the ability to navigate the diagnostic work-up and therapeutic management of immune-mediated and rheumatological diseases, including the appropriate interpretation of immunological tests, the rational use of imaging and other diagnostic tools, and the principles guiding conventional, biologic, and targeted treatments.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale	Laurea Magistrale in Medicine and	comune	15	BIO/14, MED/09,

Ciclo Unico 6 anni	Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	MED/17, MED/17, MED/16, MED/16, MED/15, MED/15, MED/09, MED/17, MED/16, MED/15

Stampa del 16/10/2026

Medical Statistics & Epidemiology [1204316]

Offerta didattica a.a. 2026/2027

Docenti: CLAUDIO PEDONE

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
The Epidemiology and Biostatistics course has two broad aims:
• To prepare students to critically assess new developments in the knowledge base for clinical practice. The course will introduce students to key principles and methods of biostatistics and epidemiology that are important for interpreting published randomized trials and observational studies.
• To provide an understanding of the interpretation of standard diagnostic and screening tests that serve as tools in clinical decision-making.

Prerequisiti
None

Contenuti del corso
Students will gain an appreciation of the methods of clinical research, including adequate knowledge of the following topics: Sampling and descriptive statistics; Hypothesis testing and p-values; Confidence intervals; Use of linear, logistic, and proportional hazard models for medical research; Interpretation of survival analysis, including Kaplan-Meier curves; Study design overview – observational studies vs. clinical trials; Observational studies: causal inference vs. prediction; Measures of disease occurrence: prevalence vs. incidence, risks, rates; Measures of disease association: risk ratio, rate ratio, hazard ratio, odds ratio, risk difference, number needed to treat, population attributable risk; Study designs: cross-sectional, cohort, case-control; Sources of bias in studies: selection, measurement error, confounding; Screening and diagnostic tests, including cancer screening; Interaction and generalizability; Randomized clinical trials; Meta-analysis.

Metodi didattici
The objectives of the class are achieved by a combination of lectures and small group discussions. The lectures will usually focus on examples of published studies and/or cases as a vehicle to present general principles. In the small group sessions, students will work through specific problems or scenarios and then discuss the answers in a large group with faculty. Class time will be approximately evenly divided between lectures and small group sessions.

Modalità di verifica dell'apprendimento
Written test with multiple choice questions.

Testi di riferimento
The required course materials are the powerpoint slides for lectures and the answer keys for the small discussion group worksheets.

Recommended reading:
• Douglas G Altman Practical Statistics for Medical Research;
• Celentano, Szklo and Farag. Gordis Epidemiology, 7th edition (Elsevier)

Risultati di apprendimento specifici
By the end of the course, students should be able to critically interpret the results of a scientific study, recognizing its design and understanding the main findings. They will be able to interpret the clinical significance of diagnostic and screening test results and contextualize these data in the clinical decision-making process.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.

Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	3	MED/01

Stampa del 16/10/2026

Neurology and Psychiatry [1204403]

Offerta didattica a.a. 2026/2027

Docenti: VINCENZO DI LAZZARO, FABIO PILATO, DOMENICO D'AVELLA, GIULIANO ALBERGO, MICHELE RIBOLSI, GIORGIO MINOTTI, MARIO TOMBINI

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
Neurology and Psychiatry is an integrated course that includes the teaching of neurology, neurosurgery, psychiatry, clinical psychology, and pharmachology. The main objective is to understand the foundations of these fields and move towards the knowledge of the diseases and the basis for medical and surgical treatment.
The course aims to address the themes of the individual subjects in a multidisciplinary manner, sharing different views in the approach to diagnosis and therapy, both medical and surgical, to the pathologies under study.
Neurology and Psychiatry provides knowledge and experience through formal lectures and seminars, problem-based and case-based learning, and practical sessions at the bedside or in the simulation centre.

Prerequisiti
The correct acquisition of knowledge and understanding of this integrated course requires a good knowledge of anatomy and physiology and students should possess the knowledge and critical understanding of biology, chemistry, physics, and mathematics and the integration of principles across the preclinical sciences. However, there are no prerequisites for other courses.

Contenuti del corso
NEUROLOGY:
The Neurology course is designed to provide a thorough understanding of the scientific basis of the main neurological diseases and how this relates to diagnosis and treatment. By the end of the course, students will be able to explain the basic nature of neurological disease processes from the standpoint of causation, epidemiology, natural history, and the clinical manifestations that result. This will allow the students to clinically assess patients with neurological diseases (symptoms and signs), as well as to interpret invasive and non-invasive instrumental diagnostics (laboratory tests, electroencephalogram, electromyography, motor and somatosensory potentials, neuroradiological exams and angiography). During practical sessions, they will develop further skills in history taking, physical examination, clinical reasoning. The course will also provide the scientific basis of established and novel neurological treatments (pharmacological and surgical) according to the latest guidelines and with a strong translational emphasis. Furthermore, the students will be able to understand and apply the fundamental methods of scientific research within the field of neurological sciences.

History and neurological examination. Cranial nerves: semiology and main syndromes. Motor syndromes: semiology and main syndromes. Sensory syndromes: semiology and main syndromes.
Deep and superficial reflexes: diagnostic significance. Neuro-otology: vertigo, dizziness, spinocerebellar syndromes. Cortical functions and related deficits. Disorders of consciousness, coma and brain death.
Neurophysiological tests (EEG, EMG, evoked potentials), Lumbar puncture: indications and contraindications, Neuroradiological exams (CT, MRI, Angiography and PET), Classification of seizures, epilepsies and epileptic syndromes, Cerebrovascular diseases: hemorrhage and cerebral ischemia, Dementias, Demyelinating diseases, Parkinson's disease, parkinsonian syndromes, dystonia, chorea, Motor neuron diseases, Myelopathies, Encephalitis and meningitis, Peripheral nerve compression syndromes, Polyneuropathies, Myopathies and Muscular disorders, Myasthenia gravis and myasthenic syndromes, Headache syndromes: clinical pictures and differential diagnosis, Diagnosis and treatment of neurological emergencies (intracranial hypertension, stupor and coma, acute spinal compressions, status epilepticus, acute meningoencephalitis, haemorrhages, acute visual impairment), Sleep disorders.

NEUROSURGERY
Prerequisites: Basic knowledge of the anatomy and physiopathology of the Central Nervous System.
The student will have to know the clinical presentation of neurological diseases susceptible to surgical therapy, the diagnostic work-up, and the surgical indication suitable for the specific situation showing that she/he knows the aims of the intervention and possibly proposes alternative approaches. Finally, she/he will have to outline the conditions that require physical and psychological rehabilitation, to indicate the best time to start, to know the theoretical bases and the pathophysiological mechanisms of action, to remember the great human utility and its relapse on the life of the disease by the patient.
The student's assessment will be based on the understanding of the topics during the frontal

lessons, lectures, neuro physiopathology laboratory, observation of surgical procedures, and papers and slides on topics presented in frontal lessons.
Topics include: Intracranial hypertension. Definition of Intracranial System. Concept of "intracranial compliance" Concept of "cerebral self-regulation". Therapy of intracranial hypertension.
Cranio-cerebral trauma. Evaluation of post-traumatic neurological status. Coma state. Assistance and treatment of "severe" cranial trauma. Early complications of cranial trauma (hematomas, etc.). Late complications (hydrocephalus, epilepsy, etc.).
Cerebrovascular diseases of neurosurgical interest. Subarachnoid hemorrhage and intracranial aneurysms. Arteriovenous malformations. Cavernous angiomas. Primary intracerebral hemorrhages.
Neoplastic Pathology of the Central and Peripheral Nervous System. Benign intracranial tumors (diagnosis and anatomic pathology). Primitive and secondary malignant intracranial tumors (pathological diagnosis and anatomy). The surgical treatment of intracranial neoplasms (including the prospects offered by the use of new technologies). Notes on complementary therapies (radiant, chemotherapeutic, genetic).
Expansive pathology of the diencephalo-pituitary region (pituitary adenoma and other non-neoplastic pathology). Anatomy and physiology of the diencephalo-pituitary region. Pituitary adenomas and trans-nasal approaches. Other neoplastic and non-neoplastic pathologies. Neurological syndromes of this region. Benign endocranial hypertension and "empty sella". Hydrocephalus. The genesis of various types of hydrocephalus and their treatment. The circulation of CSF. The obstructive hydrocephalus. The normal pressure hydrocephalus. The child's hydrocephalus.
PSYCHIATRY
General Psychopathology, Schizophrenia Spectrum Disorders, Unipolar, Depression and Anxiety Disorders, Bipolar Disorder, Personality Disorders, Autism Spectrum Disorders, PTSD and Dissociative Disorders, Dual Diagnosis and Addiction, Eating Disorders

PHARMACOLOGY
General and Clinical Pharmacology of CNS and PNS active drugs, Antimicrobial and antiviral agents

Metodi didattici
The teaching methodology will consist of a combination of traditional platform lessons, class seminars, interactive discussion on selected topics or on topics of interest for the students, and practical activities will be performed in the clinics. The students will also be stimulated to select and understand an article from the medical literature and to briefly expose its contents to the whole class.

Modalità di verifica dell'apprendimento
Learning Assessment Methodology
The assessment of students learning will take place at the end of the course, within the timeframe set by the academic calendar, by a two-step examination.

Grading Criteria
For the first part, the multiple-choice questionnaire will consist of 30 questions referred to neurology (10 questions), neurosurgery (4 questions), psychiatry (4 questions), neuropharmachology (8 questions), clinical psichology (4 questions). The minimum score to pass the written test is 18/30 (18 correct answers). Students who pass the written exam will undergo an oral interview regarding a clinical case presentation. The final grade will be calculated considering the grades of the first and the second part.

Testi di riferimento
- Allan H. Ropper, Martin A. Samuels, Joshua P. Klein, Sashank Prasad. “Adam and Victor’s Principles of Neurology”. 12th Edition.
- Joseph Jankovic, John C. Mazziotta, Scott L. Pomeroy, Nancy J. Newman “Bradley and Daroff’s Neurology in Clinical Practice”. 9th Edition

Neurosurgery
Ramez Kirollos, Adel Helmy, Simon Thomson, Peter Hutchinson “Oxford Textbook of Neurological Surgery”
Mark S. Greenberg “Handbook of Neurosurgery”

Psychiatry
Kaplan & Sadock’s Pocket Handbook of Clinical Psychiatry (Sixth Edition)

Risultati di apprendimento specifici
Knowledge and understanding
Students must achieve an adequate comprehension and knowledge of the different subjects, including neurology, neurosurgery, psychiatry, clinical psychology and pharmacology. Students will learn how different diseases may relate to each other and understand the importance of a multidisciplinary approach to patients.
Applying knowledge and understanding
Students will learn how to build a clinical path that starts from the pathophysiological bases of diagnostics and lands at outlining the optimal treatment based on the specific characteristics of the individual patient.

Making judgments
Students will become independent in clinical reasoning. When confronted with clinical challenges, they should be able to correctly process the available data and propose an adequate sequence of diagnostic and therapeutic interventions.
Communication skills
Students are expected to develop accurate and correct scientific language, which is crucial for an adequate understanding of medical subjects. At the same time, they will develop communication skills to interact with colleagues and patients effectively.
Learning skills
Students will become able to develop and constantly update the knowledge of the subjects under study, with particular reference to the consultation of textbooks, bibliographic material, scientific journals, international practice guidelines, and other information on the web.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	13	BIO/14, M-PSI/08, MED/25, MED/26, MED/27, MED/26

Stampa del 16/10/2026

Oncology (1) [1204310]

Offerta didattica a.a. 2026/2027

Docenti: BRUNO VINCENZI, MICHELE FIORE

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
The course aims to provide students with fundamental and clinical knowledge of the main thoracic and breast malignancies, with a particular focus on radiological diagnostics, integrated therapeutic strategies, and multidisciplinary clinical management. Through lectures and clinical case discussions, students will learn to interpret imaging studies, understand therapeutic options, and evaluate the impact of oncologic decisions on patients' quality of life.

Prerequisiti
General Pathology and Pathophysiology & Pharmacology
Anatomy
Physiology

Contenuti del corso
• Chest radiological imaging in oncology
• Early-stage and locally advanced non-small cell lung cancer (NSCLC)
• Clinical cases – Early/locally advanced NSCLC
• Metastatic NSCLC and clinical case discussion
• Small cell lung cancer (SCLC) and related clinical cases
• Thymoma, thymic carcinoma, and mesothelioma
• Non-metastatic breast cancer
• Metastatic breast cancer
• Clinical cases – Breast oncology

Metodi didattici
Interactive lectures, multidisciplinary clinical case discussions.

Modalità di verifica dell'apprendimento
The final examination consists of a written test with 20 multiple-choice questions. Assessment is based on eligibility: students must achieve at least 15 correct answers out of 20 to be considered eligible. Successful candidates will then take a brief oral examination.

Testi di riferimento
Slides and teaching materials provided by lecturers, international guidelines (ESMO, NCCN), recent scientific articles in clinical and radiological oncology, imaging examples and clinical case discussions.

Risultati di apprendimento specifici
At the end of the course, the student will be able to:
• Describe the diagnostic and therapeutic principles of the main thoracic and breast malignancies.
• Interpret basic oncologic radiological images.
• Critically discuss therapeutic strategies and multidisciplinary approaches.
• Apply acquired knowledge to the clinical evaluation of real cases.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale	Laurea Magistrale in Medicine and	comune	4	MED/06, MED/06,

Ciclo Unico 6 anni	Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	MED/36

Stampa del 16/10/2026

Oncology (2) [1204315]

Offerta didattica a.a. 2026/2027

Docenti: EDY IPPOLITO, BRUNO VINCENZI, SARA RAMELLA

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi
The course aims to provide students with fundamental and clinical knowledge of the main abdominal and pelvic malignancies, with a particular focus on radiological diagnostics, integrated therapeutic strategies, and multidisciplinary clinical management. Through lectures and clinical case discussions, students will learn to interpret imaging studies, understand therapeutic options, and evaluate the impact of oncologic decisions on patients' quality of life.

Prerequisiti
Oncology 1

Contenuti del corso
Abdominopelvic imaging in oncology
Esophageal cancer and clinical cases
Colorectal cancer and clinical cases
Pancreatic tumors and clinical cases
Biliary tract tumors and clinical cases
Primary and secondary liver tumors and clinical cases
Gastrointestinal stromal tumors (GIST)
Gastric tumors and clinical cases
Renal tumors and clinical cases
Testicular and bladder tumors and clinical cases
Prostate cancer and clinical cases

Metodi didattici
Interactive lectures, multidisciplinary clinical case discussions.

Modalità di verifica dell'apprendimento
The final examination consists of a written test with 20 multiple-choice questions. Assessment is based on eligibility: students must achieve at least 15 correct answers out of 20 to be considered eligible. Successful candidates will then take a brief oral examination.

Testi di riferimento
Slides and teaching materials provided by lecturers, international guidelines (ESMO, NCCN), recent scientific articles in clinical and radiological oncology, imaging examples and clinical case discussions.

Risultati di apprendimento specifici
At the end of the course, the student will be able to:
• Describe the diagnostic and therapeutic principles of the main discussed malignancies.
• Interpret basic oncologic radiological images.
• Critically discuss therapeutic strategies and multidisciplinary approaches.
• Apply acquired knowledge to the clinical evaluation of real cases.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale	Laurea Magistrale in Medicine and	comune	4	MED/06, MED/36

Ciclo Unico 6 anni Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)

Stampa del 16/10/2026

Oncology (3) [1204404]

Offerta didattica a.a. 2026/2027

Docenti: MICHELE FIORE, BRUNO VINCENZI

Periodo: Primo Ciclo Semestrale

Obiettivi formativi
The course aims to provide students with fundamental and clinical knowledge of central and peripherical nervous system tumors, head and neck malignancies, bone and soft tissue sarcomas with a particular focus on radiological diagnostics, integrated therapeutic strategies, and multidisciplinary clinical management. Through lectures and clinical case discussions, students will learn to interpret imaging studies, understand therapeutic options, and evaluate the impact of oncologic decisions on patients' quality of life.

Prerequisiti
Oncology 2

Contenuti del corso
• Imaging Anatomy
• Brain Metastases
• High Grade Gliomas
• Low Grade Gliomas
• Pheripherical Neurological Tumors
• Primary Brain Lymphomas
• Neurologic Paraneoplastic Syndromes
• Oral cavity tumors
• Oropharyngeal tumors
• Nasopharyngeal tumors
• Laringeal tumors
• Bone Metastases
• Soft Tissue Sarcomas
• Benign Disease
• Clinical cases

Metodi didattici
Interactive lectures, multidisciplinary clinical case discussions.

Modalità di verifica dell'apprendimento
The final examination consists of a written test with 20 multiple-choice questions. Assessment is based on eligibility: students must achieve at least 15 correct answers out of 20 to be considered eligible. Successful candidates will then take an oral examination.

Testi di riferimento
Slides and teaching materials provided by lecturers, international guidelines (ESMO, NCCN), recent scientific articles in clinical and radiological oncology, imaging examples and clinical case discussions.

Risultati di apprendimento specifici
At the end of the course, the student will be able to:
• Describe the diagnostic and therapeutic principles of the central and peripherical nervous system tumors, head and neck malignancies, bone and soft tissue sarcomas.
• Interpret basic oncologic radiological images.
• Critically discuss therapeutic strategies and multidisciplinary approaches.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	4	MED/06, MED/36

Stampa del 16/10/2026

Public Health [1204410]

Offerta didattica a.a. 2026/2027

Docenti: SILVIA ANGELETTI, SAVERIO STRANGES, CLAUDIO PEDONE

Periodo: Primo Ciclo Semestrale

Obiettivi formativi

<h4>Aims</h4>
The integrated course in Public Health aims to provide students with theoretical knowledge and practical skills related to public health, epidemiology, medical statistics, healthcare systems organization, and laboratory medicine.

The goals of the module "Medical statistics and Epidemiology" is to provide the basic knowledge needed to:

Frame a research question;
Plan a simple epidemiological study;
Plan a data collection and structure a database;
Prepare a standard scientific report.

In the module "Health Economics and Hospital Management" the students will understand the organization and management of healthcare systems.

The module "Training Laboratory Medicine" will provide the knowledge needed to apply the principles of evidence-based medicine, to use use laboratory data in clinical practice, and to develop decision-making skills in clinical and healthcare settings.

<h4>Knowledge and Understanding</h4>

At the end of this course the student will be able to:

 Frame a research question, organize a database and plan a statistical analysis;
understand the principles of health economics;
know the organizational models of healthcare systems;
interpret the main laboratory diagnostic tests.

<h4>Applying Knowledge and Understanding</h4>

The student will be able to:

 Analyze epidemiological data, use basic statistical tools, interpret the results, and prepare a basic scientific report;
interpret diagnostic results;
apply public health principles in prevention and clinical management.

<h4>Autonomy of Judgment</h4>

The student will develop the ability to:

critically interpret scientific literature;
evaluate the effectiveness of healthcare interventions;
analyze healthcare and clinical data.

<h4>Communication Skills</h4>

The student will be able to:

present epidemiological and clinical data;
use appropriate scientific terminology;
discuss public health issues.

<h4>Learning Skills</h4>

The student will develop:

the ability for continuous professional updating;
autonomy in studying scientific literature;
skills for lifelong learning.

Prerequisiti

The module "Medical Statistics and Epidemiology" will leverage the knowledge of the fundamental concepts of epidemiology and
biostatistics acquired during the Medical Statistics and Epidemiology
course.

Contenuti del corso

<h4>Medical Statistics and Epidemiology</h4>

Framing a research question:

The scientific literature databases;
Bibliography management software;
How to frame the background and the rationale;
Stating the hypothesis (including basic concepts of
epistemology);
Stating the aims:

The PICO approach.

Getting there: how to achieve the aims:

Align the study design with the aims;
Define the target population:

Inclusion criteria;
Exclusion criteria.

Define the information to gather:

Conceptual / operational definitions;
Variable coding.

The SMART approach.

Planning the enrolment:

The expected effect size:

Misclassification;
Precision,

Sample size.

Structuring a dataset:

Software tools:

MS Excel: pearls and pitfalls;
Other data entry softwares.

The “tidy” dataset.

The basics of data analysis:

The analytic plan;
Tables: do and don’ts;
Graphical representation of data;

Recap on statistical estimation and testing:

Random variables, probability distributions;
Common distributions:

Z
t
χ^2

Confidence intervals.
P-value.

Practical implementation with JASP.

<h4>Module 3 — Training Laboratory Medicine</h4>
Contents
Principles of laboratory medicine
Pre-analytical, analytical, and post-analytical phases
Biomarkers
Basic hematology
Clinical biochemistry
Microbiological diagnostics
Quality control
Appropriateness of test ordering
Clinical interpretation of laboratory tests
Laboratory medicine and clinical pathways

Metodi didattici
The objectives of the class are achieved by a combination of lectures and small group discussions, there will also be “hands-on” sessions for which students will be split in smaller groups to work out specific problems or scenarios.

Modalità di verifica dell'apprendimento
The final exam will take place at the end of the course, in the sessions scheduled by the academic calendar. The exam will be written with multiple choice and open ended questions. The questions will test the knowledge related to the Aims and Objectives of the course, described above, and ability to apply it.

Specifically, for the module "Medical Statistics and Epidemiology", during the semester there will be homework assignments that will count towards the final grade. The final test will be a written exam with 20 multiple-choice questions and 5 open-ended questions.
The final grade will be computed as follows:

5 points for the home assignments. Criteria for evaluation will be completeness and quality of the work and timeliness of submission.
25 points for the final test: 1 point for each correct answer to multiple-choice questions, -0.1 point for each wrong answer to multiple-choice questions, and 5 points overall for the open-ended questions, based on completeness and correctness of the answers. A grade of 30 with distinction will be assigned to students with outstanding performance in home assignments and final exam, class participation will also be taken into account.

Testi di riferimento
The required course materials are the slides for lectures.

Recommended reading:
• Douglas G Altman Practical Statistics for Medical Research;

Laboratory Medicine
• McPherson RA. Henry's Clinical Diagnosis and Management by Laboratory Methods
• Burtis CA. Tietz Fundamentals of Clinical Chemistry

PDF files containing the lecture slides will be made available through the University's web system on the dedicated area of the e-learning platform.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	5	MED/01, MED/01, MED/46, SECS-P/07

Stampa del 16/10/2026

Specialist Clinics (1) [1204409]

Offerta didattica a.a. 2026/2027

Docenti: UMILE GIUSEPPE LONGO, VINCENZO PANASITI, FEDERICA BRESSI, PAOLO PERSICHETTI, STEFANIA TENNA

Periodo: Secondo Ciclo Semestrale

Obiettivi formativi

Dermatology
• The course focuses on the main concepts of Dermatology that can be relevant for every medical doctor.
• During the course, the students would learn the basic principles of main skin diseases and acquire how to analyze skin lesions by non-invasive diagnostic tools such as dermoscopy
Plastic Surgery
• The course focuses on the main concepts of plastic surgery that can be relevant for every medical doctor on wound healing, post trauma, malformation or oncological reconstruction as well as cosmetic procedures
Psychiatry
• The course focuses on the main pathological psychiatric conditions from etio-physiopathology to clinic to treatment
Pharmacology:
• The Pharmacology course aims at making the student acquainted with general e specific knowledge on Methodology of Clinical Research
Medical Imaging:
• The course focuses on the diagnosis and loco-regional treatment of soft tissue lesions (MAV and skin cancers).
• During the course, the students would learn the basic principles of imaging modalities and interventional radiology procedures for the management of soft tissue lesions.

Prerequisiti

. Students must have completed all exams of the 3rd year (Dermatology and Plastic surgery) and of the 4rd year (pharmacology)

Good knowledge of normal human anatomy, anatomical pathology, human physiology and immunopathology is mandatory.

Contenuti del corso

Psychiatry
• Psychiatry and Medicine.
• Basic psychopathology.
• Psychiatric semiotics and etiopathogenetic hypotheses of mental disorders.
• Classification systems: DSM 5 – ICD-10.
• Notes on the history of psychiatry and the main currents of thought in psychopathology.
• Psychodiagnostics: mental tests and neuropsychological examinations. Questionnaires and symptom scales.
• The main pathological conditions:
o Schizophrenia and other psychotic disorders, mood disorders;
o Anxiety disorders;
o Somatoform disorders;
o Factitious disorders; Dissociative disorders;
o Sexual and gender identity disorders;
o Eating disorders; Impulse control disorder; Adaptation disorders;
o Personality disorders; Delirium, dementia, amnestic disorders;
o Disorders usually diagnosed for the first time in infancy, childhood and adolescence;
o Alcoholism, drug addiction and dual diagnosis;
o Mental disorders linked to social and technological development (burn-out, mobbing, transcultural pathologies and linked to the spread of new communication systems).
• Treatments in psychiatry: psychotherapy, psychotropic drugs and other forms of therapy, assistance and rehabilitation, individual, family and group.
Dermatology
• Melanoma and non-melanoma skin cancers
• Alopecia

• Syphilis and other sexual transmitted diseases
• Psoriasis
• Bullous dermatosis
• Eczema
• Lichen
• Urticaria angio-oedema
• Principles of dermoscopy

Plastic Surgery
• Wound healing. Scar. Ulcers.
• Basic techniques: Grafts and flaps.
• Techniques and principles in plastic surgery: Z plasty, V-Y advancement etc.
• Skin Cancer treatment
• Burn injuries.
• Congenital anomalies.
• Breast reconstructions.
• Principles of cosmetic surgery

Pharmacology:
• purpose and phases of clinical research,
• clinical trial development
• ethical and regulatory implications
• roles and responsibilities of all parties involved

Medical Imaging:
• US, CT and MRI
• Angiography
• Embolization
• Sclerotherapy
• Ablation modalities
• Melanotic lesions
• Non melanotic lesions
• Artero-venous Malformations

Metodi didattici

Dermatology
Frontal lessons: 24 hours
Practical sessions: 24 hours
Practical sessions will focus on clinical cases presentations.
Students will be invited to participate at the weekly interdisciplinary meeting on melanoma e non melanoma skin cancer

Plastic Surgery:
Frontal lessons: 12 hours and Practical sessions: 12 hours
Practical sessions will focus on clinical cases presentations.
Students will be invited to participate at the weekly interdisciplinary meeting on melanoma e non melanoma skin cancer
Pharmacology: Frontal lessons
Medical Imaging: Frontal lessons: 6 hours. Practical sessions will focus on clinical cases presentations.

Modalità di verifica dell'apprendimento

REQUIREMENTS
Students must have successfully completed all examinations of the 4th year, as required by the Degree Programme regulations.
A solid knowledge of Human Anatomy, Physiology, Pathological Anatomy, and Immunopathology is mandatory.

FINAL EXAM
The final examination consists of a comprehensive written test covering all disciplines included in the Integrated Course.
The test includes 56 multiple-choice questions, distributed proportionally according to the assigned CFU credits, as follows:
Psychiatry (4 CFU): 16 questions (single best answer, five options)
Dermatology (4 CFU): 16 questions, each composed of five True/False statements)
Plastic Surgery (2 CFU): 8 questions (single best answer, five options)
Pharmacology (2 CFU): 8 questions (single best answer, five options)
Radiology and Interventional Radiology (1 CFU): 4 questions (single best answer, five options)

Pathology (1 CFU): 4 questions (single best answer, five options)

Estimated duration: 2 hours.

Scoring System
Each correct answer in single best answer questions is awarded 1 point.
For Dermatology: Each correct True/False statement is awarded +0.2 points, each incorrect statement is penalized −0.2 points, unanswered statements receive 0 points. The maximum score for each Dermatology question is 1 point
The maximum total score for the written test is 56 points.

Grade Calculation
The final grade is calculated by converting the total score proportionally to the 0–30 grading scale according to the following formula:
Final Grade=(Total Score/56)×30

Passing Criteria
In order to pass the examination, students must:
Achieve at least 50% of the maximum score in each discipline, corresponding to:
Psychiatry: ≥ 8/16
Dermatology: ≥ 8/16
Plastic Surgery: ≥ 4/8
Pharmacology: ≥ 4/8
Radiology and Interventional Radiology: ≥ 2/4
Pathology: ≥ 2/4
Obtain an overall final grade of at least 18/30.

Failure to reach the minimum threshold in any single discipline results in failure of the examination.

Oral Discussion
The Examination Board may schedule an oral discussion in the following cases:
Borderline overall results
Verification of disciplinary thresholds
Evaluation for honours (30 cum laude)
The oral discussion aims to assess clinical reasoning, integration across disciplines, and depth of understanding.

Honours (30 cum laude)
Students obtaining a written score corresponding to at least 29/30, and having fulfilled all disciplinary thresholds, may be admitted to an oral discussion based on an integrated clinical case.
The clinical case is designed to assess:
-Advanced clinical reasoning
-Interdisciplinary integration across the disciplines included in the course
-Diagnostic interpretation and therapeutic decision-making
-Ability to justify clinical choices with appropriate scientific rationale
The award of 30 cum laude is granted unanimously by the Examination Board to students demonstrating outstanding analytical ability, integration of knowledge, and clinical maturity.

Testi di riferimento

Psychiatry
- Kaplan & Sadock's Synopsis of Psychiatry, 12th Edition
- Manuale di Psichiatria, a cura di Alberto Siracusano, Il Pensiero Scientifico Editore 2023
Dermatology:
- ABC of Dermatology sixth edition. Edited by Rachael Morris-Jones. Wiley Blackwell
Plastic Surgery:
- N. Scuderi, Chirurgia Plastica, Piccin Editore
- Grabb and Smith's Plastic Surgery settembre 2013 Edizione Inglese di M.D. Thorne, Charles H. (a cura di), M.D. Chung, Kevin C.
- Cervelli-Longo. Chirurgia Plastica Ricostruttiva ed estetica. Pacini Editore
- DVD: Chirurgia Plastica Ricostruttiva ed Estetica; Santanelli F., Scuderi N. Edizioni Luigi Pozzi.
Pharmacology:
- Katzung B.G. "Farmacologia generale e clinica", XI ed; a cura del Prof. Paolo Preziosi, Piccin
Laurence L. Brunton Randa Hilal-Dandan Björn C. Knollmann Goodman & Gilman. "Le basi farmacologiche della terapia", XIII ed; Zanichelli
Medical Imaging:
- Cittadini, Diagnostica per Immagini e Radioterapia, Edra.
- Passariello, Compendio di Radiologia, Idelson Gnocchi.

Risultati di apprendimento specifici

Dermatology
The students must achieve the knowledge of:
1) primary morphology in dermatology
2) nevi and Melanoma
3) non melanoma skin cancer
4) hair diseases.
5) sexual transmitted diseases
6) inflammatory cutaneous diseases
7) infectious skin diseases
Plastic Surgery:
The student must achieve the following goals:
1) To know the stages of wound healing.
2) To Indicate the basic techniques and principles in plastic surgery.
3) To describe the etiology, clinical and treatment options in burns injuries.
4) To explain the principal congenital anomalies, oncological and post traumatic pathologies that may require reconstructive surgery.
5) To describe the principles of the cosmetic surgery.
Pharmacology:
The goal of this course is to provide students with the fundamentals of clinical research focusing on its purpose, development, regulations, and implications in healthcare
Medical Imaging:
The student must achieve the following goals:
1) To know the principles of imaging modalities.
2) To Indicate the basic techniques in interventional radiology.
3) To identify the different type of soft tissue lesions on imaging.
4) To appropriately indicate the management for diagnosis and interventional radiology procedures in soft tissue lesions (MAV and skin cancer).

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	11	MED/35, MED/35, MED/34, MED/19, MED/33, MED/35, MED/34, MED/19, MED/33

Stampa del 16/10/2026

TEACHING ELECTIVES [12046E1]

Offerta didattica a.a. 2026/2027

Docenti:

Periodo: Ciclo Annuale Unico

Syllabus non pubblicato dal Docente.

L'attività didattica è offerta in:

Faculty of Medicine, Surgery and Dentistry

Tipo corso	Corso di studio (Ordinamento)	Percorso	Crediti	S.S.D.
Laurea Magistrale Ciclo Unico 6 anni	Laurea Magistrale in Medicine and Surgery (official title: Laurea Magistrale in Medicine and Surgery) (2019)	comune	1	NN

Stampa del 16/10/2026