

# MESTRADOS

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## MESTRADO INTEGRADO EM MEDICINA

### INTEGRATED MASTER DEGREE IN MEDICINE DESCRIPTION OF CURRICULAR UNITS ACADEMIC YEAR 2024/2025

Remark: This document should be used solely as a reference for the preparation of the Learning Agreement, and is based on the syllabus for the 2024/2025 academic year. It is subject to change. In case of discrepancies between this version and the official document, the original version written in Portuguese shall prevail.

In case of any questions, please contact the Mobility Office of NOVA Medical School: [mobilidade-in@nms.unl.pt](mailto:mobilidade-in@nms.unl.pt)

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107001 – Anatomia I (Anatomy I)

Type	Mandatory
Curricular Year	1 <sup>st</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	9 ECTS
<p>The programmatic contents of the Anatomy I Curricular Unit are divided into 4 fundamental areas: General Anatomy, Anatomy of Locomotion, Anatomy of Nerves and Anatomy of Vessels, and included the deepening of concepts that each one of these areas in the areas of Descriptive, Topographical, Clinical and Imaging Anatomy.</p> <p><u>General Anatomy:</u></p> <ul style="list-style-type: none"> <li>➤ Divisions of Anatomy, anatomical nomenclature, anatomical or descriptive position, descriptive or reference plans.</li> </ul> <p><u>Anatomy of Locomotion:</u></p> <ul style="list-style-type: none"> <li>➤ Osteo-arthrology and myology of the upper limbs, lower limbs, bone head, thorax and dorsum; topography of the axillary excavate, arm, forearm, hand, gluteal region, thigh, knee, leg, foot, thorax, dorsum, abdominal wall.</li> </ul> <p><u>Anatomy of Nerves:</u></p> <ul style="list-style-type: none"> <li>➤ Systematization of the spinal nerves and medullary and radicular territories, cervical plexus, brachial, lumbar, pudendal, sacrococcygeal and autonomic nervous system: organization and systematization; Cranial nerves: Oculomotor nerve, trochlear nerve, abducens nerve, trigeminal nerve - ophthalmic nerve (Willis), maxillary nerve and mandibular nerve, facial nerve and intermediate nerve (Wrisberg), glosso-pharyngeal nerve, vagus nerve, accessory nerve, hypoglossal nerve.</li> </ul> <p><u>Vessel Anatomy:</u></p> <ul style="list-style-type: none"> <li>➤ Arterial, venous and lymphatic vasculature of the upper and lower limbs.</li> </ul>	

## 107002 – Biologia Celular e Molecular (Molecular and Cellular Biology)

Type	Mandatory
Curricular Year	1 <sup>st</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	8 ECTS
<p>The content of the theoretical lectures is delivered through video recorded short classes, (equivalent to 50 mins each, some may be subdivided, in a traditional format) and by 6 presential, integrative seminars:</p> <ul style="list-style-type: none"> <li>➤ The eucaryotic cell.</li> <li>➤ Nuclear Processes: Genetic Mechanisms; Control of Gene Expression.</li> <li>➤ Internal organization of the cell.</li> <li>➤ Signaling Mechanisms, receptors and signaling molecules.</li> <li>➤ Cell cycle.</li> <li>➤ Cell context and behavior: cell adhesion, apoptosis, senescence, cell mobility and chemotaxis, cell differentiation and stem cells.</li> <li>➤ Immune Mechanisms; Innate and adaptive immunity.</li> </ul> <p><u>Practical module:</u></p> <ul style="list-style-type: none"> <li>➤ Proteins: protein study methods, quantification, detection of antibodies, enzymatic activity.</li> <li>➤ Nucleic acids; Recombinant DNA Technology, Mini-Project.</li> <li>➤ Cells and Signaling: High Resolution Microscopy, Cell Culture, Cell Cycle (“Case Study I”) and Signaling Pathways (“Case Study II”).</li> <li>➤ Immune System: Innate Immunity and Antigen Recognition, Immune response, Hypersensitivity and Autoimmunity.</li> </ul>	

## 107003 – Introdução à Medicina (Introduction to Medicine)

Type	Mandatory
Curricular Year	1 <sup>st</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	3 ECTS
<ul style="list-style-type: none"> <li>➤ The concept of Health and health determinants – The concept of “One Health”.</li> <li>➤ Objectives of Medicine.</li> <li>➤ Prevention and treatment of diseases, rehabilitation of patients, health promotion.</li> <li>➤ Great issues of modern medicine.</li> <li>➤ Medicine, science and technology, medical care, and economic factors; medicine and globalization.</li> <li>➤ Practice of Medicine.</li> <li>➤ The doctor and clinical practice; health research and health policies.</li> <li>➤ The multidisciplinary team.</li> <li>➤ Preparation for the medical profession.</li> <li>➤ Introduction to preparation of reports and scientific papers.</li> <li>➤ Introduction to doctor-patient relationship.</li> <li>➤ Health services organization.</li> <li>➤ The role of citizens, patient organizations and family – the caregiver.</li> </ul>	

107004 – Suporte Básico de Vida (Basic Life Support)

Type	Mandatory
Curricular Year	1 <sup>st</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	1 ECTS
<p>BLS “Mass Training” (2 groups of +/-150 students; divided into morning and afternoon)</p> <ul style="list-style-type: none"> <li>➤ Introduction to the project.</li> <li>➤ Expository session (Review of Basic Life Support algorithm).</li> <li>➤ Practice and training with dummy.</li> <li>➤ Individual assessment of each candidate.</li> <li>➤ Final plenary session and closure.</li> <li>➤ Seminar - The Portuguese Emergency System. Pre- and in-hospital emergency.</li> <li>➤ Survival Chain and post-resuscitation care.</li> </ul>	

107005 – Fisiologia I (Physiology I)

Type	Mandatory
Curricular Year	1 <sup>st</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	8 ECTS
<ul style="list-style-type: none"> <li>➤ Biophysics of excitability.</li> <li>➤ Synaptic transmission.</li> <li>➤ Mechanisms underlying muscle contraction.</li> <li>➤ Autonomic Nervous System.</li> <li>➤ Physiology of the cardiovascular system.</li> <li>➤ Physiology of the digestive system.</li> </ul>	

107006 – Bioquímica Nutricional (Nutritional Biochemistry)

Type	Mandatory
Curricular Year	1 <sup>st</sup> year
Semester	2 <sup>nd</sup> semester (only)
Credits	10 ECTS
<ul style="list-style-type: none"> <li>➤ General notions of human food and nutrition.</li> <li>➤ General notions of organic chemistry.</li> <li>➤ Structure and biological role of macronutrients.</li> <li>➤ Food digestion and assimilation of nutrients.</li> <li>➤ Glucose metabolism.</li> <li>➤ Protein metabolism and lipid metabolism.</li> <li>➤ Metabolism of Purine and Pyrimidine Nucleotides.</li> <li>➤ Cholesterol and bile acids; diet, cholesterol and hypertension.</li> <li>➤ Metabolic integration.</li> <li>➤ Macronutrients and cell signaling molecules.</li> <li>➤ Diet and metabolism of xenobiotics.</li> <li>➤ Microbiota.</li> <li>➤ Vitamins.</li> <li>➤ Minerals.</li> <li>➤ Micronutrients and metabolic diseases.</li> <li>➤ Hemostasis.</li> <li>➤ Polyphenols and metabolic disease.</li> <li>➤ Carcinogens in the diet: culinary processing.</li> <li>➤ Nutrients and intrauterine ontogenesis (epigenetic regulation of gene expression).</li> <li>➤ Metabolism and regulating appetite.</li> <li>➤ Chronobiology, food and metabolism.</li> </ul>	

107007 – Fisiologia II (Physiology II)

Type	Mandatory
Curricular Year	1 <sup>st</sup> year
Semester	2 <sup>nd</sup> semester (only)
Credits	7 ECTS
<ul style="list-style-type: none"> <li>➤ Respiratory physiology.</li> <li>➤ Blood transport of gases.</li> <li>➤ Physiology of exercise.</li> <li>➤ Renal physiology.</li> <li>➤ Water and acid-base balance.</li> <li>➤ Endocrine physiology.</li> </ul>	

107008 – Anatomia II (Anatomy II)

Type	Mandatory
Curricular Year	1 <sup>st</sup> year
Semester	2 <sup>nd</sup> semester (only)
Credits	9 ECTS)
<p>The programmatic contents of the Anatomy II Curricular Unit are divided into 3 fundamental areas: Organ Anatomy, Nerve Anatomy and Vessel Anatomy, and included the deepening of concepts that each of these areas in the areas of Descriptive, Topographical, Clinical and Imaging Anatomy.</p> <ul style="list-style-type: none"> <li>➤ Organ Anatomy: Topographic and descriptive anatomy of the organs of the head and neck, organs of the thoracic cavity, organs of the digestive system, urinary system, male and female genital system, endocrine and lymphoid organs. Description and topography of the peritoneum and its dependencies.</li> <li>➤ Anatomy of Nerves: Innervation of the organs of the thorax, digestive system, urinary system and male and female genitalia</li> <li>➤ Vessel anatomy: Arterial, venous and lymphatic vasculature of the thorax, abdomen and trunk. General Anatomy of the Heart and Vessels, general considerations about heart and its anatomical constitution. Pericardium. Innervation and vascularization of the heart. Cardionector system. Special vascular anatomy.</li> </ul> <p>During the semester, students will have dissection classes during the practical course.</p>	

107009 – Histologia e Embriologia (Histology and Embriology)

Type	Mandatory
Curricular Year	1 <sup>st</sup> year
Semester	2 <sup>nd</sup> semester (only)
Credits	7 ECTS)
<p>The syllabus integrates methods and tools in the actual study of cells, tissues, organs and systems. The Histology of all organs and systems of the human body will be addressed, always complemented with Embryology and emphasizing the modification of structures in accordance with the functionality and evolution of the individual, whether hormonal or age.</p>	



107010 – Anatomia Patológica I (Pathology I)

Type	Mandatory
Curricular Year	2 <sup>nd</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	6 ECTS
<ul style="list-style-type: none"> <li>➤ Anatomic Pathology.</li> <li>➤ Pathology: causes of disease.</li> <li>➤ Cell injury: causes, mechanisms and agents.</li> <li>➤ Intracellular accumulation.</li> <li>➤ Cell adaptation: changes in growth and activity.</li> <li>➤ Cell adaptation: changes in differentiation.</li> <li>➤ Cell death: Apoptosis and other types.</li> <li>➤ Cell death: Oncosis and patterns of necrosis.</li> <li>➤ Inflammation: introduction.</li> <li>➤ Acute inflammation.</li> <li>➤ Chronic inflammation.</li> <li>➤ Repair: regeneration and healing.</li> <li>➤ Circulatory disorders: edema, hyperemia, congestion.</li> <li>➤ Obstacles to the blood flow: thrombosis.</li> <li>➤ Obstacles to the blood flow: embolism, other.</li> <li>➤ Obstacles to the blood flow: arteriosclerosis.</li> <li>➤ Neoplasms: general concepts.</li> <li>➤ Neoplasms: epidemiology.</li> <li>➤ Neoplasms and genes.</li> <li>➤ Neoplasms: etiopathogenesis.</li> <li>➤ Neoplasms: condition and pre-malignant disease.</li> <li>➤ Neoplasms: progression and tumor markers</li> <li>➤ 23. Neoplasms: diagnosis and prognosis</li> </ul>	

107011 – Farmacologia I (Pharmacology I)

Type	Mandatory
Curricular Year	2 <sup>nd</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	6 ECTS)
<ul style="list-style-type: none"> <li>➤ Concepts in Pharmacology.</li> <li>➤ Administration routs and drug formulation.</li> <li>➤ General principles of pharmacokinetics.</li> <li>➤ General principles of pharmacodynamics.</li> <li>➤ Drugs which are proteins.</li> <li>➤ Therapeutic drug monitorization.</li> <li>➤ General mechanisms of drug toxicity.</li> <li>➤ General mechanisms of drug interactions.</li> <li>➤ General principles of drug evaluation.</li> <li>➤ From origin to therapeutic use: the life cycle of a drug.</li> <li>➤ Clinical trials and marketing authorization.</li> <li>➤ Generic and biosimilar drugs.</li> <li>➤ General Pharmacology of the Renin angiotensin aldosterone system.</li> <li>➤ General Pharmacology of adrenergic transmission.</li> <li>➤ General Pharmacology of cholinergic transmission.</li> <li>➤ General pharmacology of inflammation.</li> <li>➤ Anti-inflammatory non-steroids.</li> <li>➤ Glucocorticoids.</li> <li>➤ General pharmacology of histamine.</li> <li>➤ Pharmacology of cellular proliferation.</li> <li>➤ Antitumoral dugs.</li> <li>➤ Immunosuppressants.</li> <li>➤ Pharmacology of the ionic transport.</li> <li>➤ Local anesthetics.</li> <li>➤ General anesthetics.</li> <li>➤ Oxygen therapy and fluid therapy.</li> <li>➤ Pharmacology of the Respiratory System.</li> </ul>	

107012 – Fisiopatologia I (Pathophysiology I)

Type	Mandatory
Curricular Year	2 <sup>nd</sup> year
Semester	1 <sup>st</sup> semester
Credits	5 ECTS
<p>In Pathophysiology I the blocks will be: pathophysiology of general expressions I, pathophysiology of the circulatory system, pathophysiology of the respiratory system and pathophysiology of blood and hemostasis.</p>	

107013 – Fundamentos de Neurociências (Principles of Neuroscience)

Type	Mandatory
Curricular Year	2 <sup>nd</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	7 ECTS)
<ul style="list-style-type: none"> <li>➤ An invitation to Neuroscience.</li> <li>➤ Information transmission within neurons.</li> <li>➤ Information transmission between neurons.</li> <li>➤ Neuronal metabolism and LCR.</li> <li>➤ Spinal cord.</li> <li>➤ Brainstem.</li> <li>➤ Cerebellum.</li> <li>➤ Reflexes and neuromuscular control.</li> <li>➤ Telencephalon and basal nuclei.</li> <li>➤ Motor control.</li> <li>➤ Diencephalon and amygdala.</li> <li>➤ Brain regulatory systems: sleep and sexual behavior.</li> <li>➤ Brain regulatory systems: feeding.</li> <li>➤ Neurobiology of emotions and affects.</li> <li>➤ Cortex and hippocampus.</li> <li>➤ Learning.</li> <li>➤ Memory.</li> <li>➤ Neurobiology of language.</li> <li>➤ Perceiving the physical world I – Somatic sensation and neurobiology of pain.</li> <li>➤ Perceiving the physical world II – Eye and ear.</li> <li>➤ Perceiving the physical world III – Vision, hearing, and the vestibular system.</li> <li>➤ Perceiving the chemical world – smell and taste.</li> <li>➤ Introduction to neuroimaging.</li> <li>➤ Vascularization of the Central Nervous System.</li> <li>➤ Disorders of neuronal activity and conduction; neurodegeneration.</li> <li>➤ Drugs that modulate serotonin and norepinephrine.</li> <li>➤ Drugs that modulate dopamine and acetylcholine.</li> <li>➤ Drugs that modulate neuronal excitability, glutamatergic, and gabaergic transmission.</li> <li>➤ Manipulating the electrical activity of the CNS.</li> </ul>	

107014 – Genética (Genetics)

Type	Mandatory
Curricular Year	2 <sup>nd</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	5 ECTS)
<ul style="list-style-type: none"> <li>➤ Structure and Function of genes and Organization of the Human Genome (6H).</li> <li>➤ Organization of genes. Chromatin structure. Coding and non-coding regions.</li> <li>➤ Regulation of gene expression.</li> <li>➤ Epigenetics.</li> <li>➤ Orthologous and paralogous. Transposable elements.</li> <li>➤ Genes and Disease (14H).</li> <li>➤ Transmission patterns of autosomal recessive, dominant and X-related situations. Modifying factors of expression.</li> <li>➤ Clinical presentation and mechanisms of most frequent mendelian conditions: familial hypercholesterolemia; hypertrophic cardiomyopathy; polycystic kidney disease; cystic fibrosis.</li> <li>➤ Mutations and pre-mutations; trinucleotide expansion diseases.</li> <li>➤ Rasopathies</li> <li>➤ Multifactorial inheritance.</li> <li>➤ Cancer genetics: breast cancer. APC and HNPCC. Familial vs. sporadic cancers.</li> <li>➤ Interaction of genes with other genes and environmental factors and role in pathology. Epistasis.</li> <li>➤ Chromosomes and Chromosomal Pathology (4H).</li> <li>➤ Mechanisms of chromosomal alterations.</li> <li>➤ Numerical and structural chromosomal abnormalities, and mosaics. From cytogenetics to the clinical presentation. Aneuploidies, Chromosome deletion syndromes.</li> <li>➤ Population Genetics (4H).</li> <li>➤ Gene frequencies in populations. Allelic frequencies and genetic drift. Effect of inbreeding and neo-mutations in frequency. Medical intervention and gene frequencies. Evolutionary principles to understand human biology and pathology.</li> </ul>	

107015 – Fisiopatologia II (Pathophysiology II)

Type	Mandatory
Curricular Year	2 <sup>nd</sup> year
Semester	2 <sup>nd</sup> semester (only)
Credits	6 ECTS
<p>In Pathophysiology II, the blocks will be: pathophysiology of general expressions II, pathophysiology of the digestive system, pathophysiology of the kidney and liquid environment, pathophysiology of the endocrine system and metabolism/ pathophysiology of the osteoarticular system.</p>	

## 107016 – Microbiologia Básica (Basic Microbiology)

Type	Mandatory
Curricular Year	2 <sup>nd</sup> year
Semester	2 <sup>nd</sup> semester (only)
Credits	3 ECTS)
<ul style="list-style-type: none"> <li>➤ Introduction to medical microbiology.</li> <li>➤ Taxonomy, morphological characteristics, and laboratory diagnosis of these microorganisms.</li> <li>➤ General principles of bacteriology.</li> <li>➤ General principles of mycology.</li> <li>➤ General principles of virology.</li> <li>➤ General principles of parasitology.</li> </ul>	

## 107017 – Introdução à Prática Clínica (Introduction to Clinical Practice)

Type	Mandatory
Curricular Year	2 <sup>nd</sup> year
Semester	2 <sup>nd</sup> semester (only)
Credits	11 ECTS
<ul style="list-style-type: none"> <li>➤ Clinical Interview.</li> <li>➤ Symptoms and Cardinal Signs.</li> <li>➤ Clinical Communication Skills.</li> <li>➤ Daily Activities in Medical History.</li> <li>➤ Patient Approach in the Emergency Room.</li> <li>➤ Approach to the Elderly Patient.</li> <li>➤ Nutrition.</li> </ul> <p><u>Introduction to Infection Control and Antimicrobial Resistance Semiology of:</u></p> <ul style="list-style-type: none"> <li>➤ Cardiovascular System - Heart and Great Vessels.</li> <li>➤ Cardiovascular System - Peripheral Vascular System.</li> <li>➤ Respiratory System.</li> <li>➤ Nephrology.</li> <li>➤ Nervous System.</li> <li>➤ Behavior and Mental State Examination.</li> <li>➤ Musculoskeletal System (Rheumatology and Rehabilitation).</li> <li>➤ Gastrointestinal - Medical and Surgical Semiology.</li> <li>➤ Female Genital System and Breast.</li> <li>➤ Urinary and Male Genital System.</li> <li>➤ Dermatology.</li> <li>➤ Endocrinology.</li> <li>➤ Ear, Nose and Throat.</li> <li>➤ Ophthalmology.</li> <li>➤ Infectious Diseases.</li> </ul> <p>Training Models - Medical and Surgical (Simulation Classes). Hospital Training - Practice in Cardiology and Nephrology hospital services.</p>	

## 107018 – Anatomia Patológica II (Pathology II)

Type	Mandatory
Curricular Year	2 <sup>nd</sup> year
Semester	2 <sup>nd</sup> semester (only)
Credits	6 ECTS
<ul style="list-style-type: none"><li>➤ Anatomic Pathology / Systemic Pathology.</li><li>➤ Neoplasms.</li><li>➤ Extracellular pathology and multisystemic diseases.</li><li>➤ Cardiovascular system.</li><li>➤ Respiratory system.</li><li>➤ Hematopoietic and lymphoid system.</li><li>➤ Gastrointestinal system.</li><li>➤ Urinary system.</li><li>➤ Female and male reproductive system.</li><li>➤ Skin and Breast.</li><li>➤ Bone, Soft Tissues and Nervous System.</li><li>➤ Endocrine system.</li></ul>	

## 107019 – Farmacologia II (Pharmacology II)

Type	Mandatory
Curricular Year	2 <sup>nd</sup> year
Semester	2 <sup>nd</sup> semester (only)
Credits	5 ECTS

Cardiovascular and Renal Pharmacology:

- Pharmacology of lipoprotein metabolism.
- Pharmacology of hemostasis.
- Platelet anti-aggregants.
- Anticoagulants.
- Fibrinolytics.
- Procoagulants.
- Pharmacology of the renin angiotensin aldosterone system.
- Cardiovascular adrenergic pharmacology: beta-blockers, alpha agonists and antagonists.
- Pharmacology of ischemic heart disease.
- Pharmacology of pulmonary hypertension.
- Pharmacology of erectile dysfunction.
- Pharmacology of diuretics.
- Pharmacology of heart failure and shock.
- Pharmacology of heart rhythm changes.
- Pharmacology of arterial hypertension (integrating seminar).

Gastrointestinal Pharmacology:

- Pharmacology of gastric mucosa.
- Pharmacology of intestinal secretion and motility.
- Pharmacology of inflammatory bowel disease.
- Vomiting Pharmacology.

Endocrine and Metabolic Pharmacology:

- Pharmacology of diabetes.
- Pharmacology of obesity.
- Pharmacology of bone metabolism and osteoporosis.
- Pharmacology of sex hormones.
- Pharmacology of thyroid hormones.

General pharmacology of anti-infectious drugs:

- Antiseptics and disinfectants.
- Vaccines.
- Anti-bacterial.
- Anti-viral.
- Anti-fungal.
- Anti-parasitic.
- Therapeutic drug monitoring applied to anti-infectious drugs.

## 107020 – Medicina Laboratorial (Laboratory Medicine)

Type	Mandatory
Curricular Year	3 <sup>rd</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	4 ECTS
<p>In order to achieve the above-mentioned learning goals and to develop the competences and performances, the program contents of this CU are divided into 3 groups:</p> <ul style="list-style-type: none"> <li>➤ Applying nuclear knowledge of physiology and pathophysiology in transversal medical areas, such as Chemical Pathology, Hematology and Immunopathology.</li> <li>➤ Study of the procedures used in the laboratory for screening, diagnosis, monitoring and therapeutics.</li> <li>➤ c) Adequacy of prescription, evaluation and interpretation of laboratory tests applied to real clinical cases situations.</li> </ul>	

## 107021 – Medicina Interna (Internal Medicine)

Type	Mandatory
Curricular Year	3 <sup>rd</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semester (available in both semesters)
Credits	14 ECTS
<ul style="list-style-type: none"> <li>➤ Cardiac Failure.</li> <li>➤ Arterial Hypertension.</li> <li>➤ Diabetes Mellitus.</li> <li>➤ Anemia.</li> <li>➤ Jaundice.</li> <li>➤ COPD.</li> <li>➤ Venous thromboembolism.</li> <li>➤ Cerebral Vascular Accident.</li> <li>➤ Confusional states in elderly.</li> <li>➤ Infection and prevention of hospital-acquired infections.</li> <li>➤ Fever.</li> <li>➤ Nutrition and fluid management.</li> <li>➤ EKG and imaging.</li> <li>➤ Rheumatoid arthritis and spondyloarthropathies.</li> <li>➤ Systemic lupus erythematosus, mixed connective tissue disease, Sjogren syndrome.</li> <li>➤ Behçet disease and systemic vasculitis.</li> <li>➤ Fever of unknown origin.</li> </ul>	



107022 – Saúde Pública e Epidemiologia (Public Health and Epidemiology)

Type	Mandatory
Curricular Year	3 <sup>rd</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	4 ECTS

  

<ul style="list-style-type: none"> <li>➤ Public health: overview and general principles; Health and development. Social determinants of health.</li> <li>➤ Population and health: Dynamics of population. Ageing.</li> <li>➤ Health indicators: mortality, morbidity, life expectancy and measures of burden of disease.</li> <li>➤ Non-Communicable Diseases: Cardiovascular and cerebrovascular disease prevention and control. Diabetes. Rheumatic and Musculoskeletal conditions.</li> <li>➤ Communicable Diseases: Overview and general principles; Epidemics; Pandemics; Control and prevention; immunization and Chemoprophylaxis.</li> <li>➤ Health and Environment.</li> <li>➤ Surveillance. Types of surveillance; Surveillance systems; Epidemic Intelligence.</li> <li>➤ The Health System. National health Plan. Goals and evaluation. Quality in health.</li> <li>➤ Health promotion. Literacy in Health. Work and Health.</li> <li>➤ Disease Prevention and Screening.</li> <li>➤ Global Health.</li> <li>➤ Ethics in public health.</li> <li>➤ Investigate, communicate, and publish.</li> <li>➤ Sustainability.</li> </ul> <p><u>Epidemiology:</u></p> <ul style="list-style-type: none"> <li>➤ Epidemiology definition and its application in clinical practice and public health.</li> <li>➤ Research question.</li> <li>➤ Epidemiological study types.</li> <li>➤ Advantages and disadvantages of the different study types.</li> <li>➤ Outcome and exposure definitions and how to measure it</li> <li>➤ Causal inference basic concepts.</li> <li>➤ Confounding and bias definitions and interpretation.</li> <li>➤ Frequency measures.</li> <li>➤ Association measures.</li> <li>➤ Systematic literature reviews.</li> </ul>
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107023 – Bioestatística (Biostatistics)

Type	Mandatory
Curricular Year	3 <sup>rd</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	4 ECTS
<p>Summarizing data. Presenting data. Correlation coefficients (Pearson, Spearman, and Kendall). Normal, Student's t, Chi-Squared, and Snedecor's F distributions. Sampling methods. Questionnaires. Statistical inference: estimation and hypotheses tests: basic concepts, one-sample tests, two independent samples tests (z test, t test, and Mann-Whitney test), paired samples tests (paired t-test, Wilcoxon, and Sign test), more than two independent samples tests (ANOVA I and Kruskal-Wallis) and more than two related samples test (Friedman). Analysis of cross-tabulations (Chi-squared test for association and Fisher's exact test) and McNemar's test for matched samples. Interpreting results obtained by linear, logistic and Cox regression models. SPSS functionalities that will enable students to analyze the data with the statistical methodologies previously taught.</p>	

107024 – Imunologia (Immunology)

Type	Mandatory
Curricular Year	3 <sup>rd</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	4 ECTS
<p>The syllabus of the curricular unit of Immunology includes the following themes:</p> <ul style="list-style-type: none"> <li>➤ Establishment and functioning of the SI.</li> <li>➤ Innate and Adaptive Immune Response.</li> <li>➤ Complement System.</li> <li>➤ Complement and disease.</li> <li>➤ Maturation of T and B cells.</li> <li>➤ Antibodies and antigens.</li> <li>➤ Major Histocompatibility Complex and antigen presentation mechanisms.</li> <li>➤ Immune Response Mediated by T and B cells.</li> <li>➤ Immune Tolerance Mechanisms.</li> <li>➤ Immune Regulation Mechanisms.</li> <li>➤ Immunization.</li> <li>➤ Infectious Diseases: immunologic mechanisms and clinical and laboratory approach.</li> <li>➤ Hypersensitivity Reactions.</li> <li>➤ Primary Immunodeficiencies.</li> <li>➤ Allergy and Hypersensitivity.</li> <li>➤ Autoimmunity.</li> <li>➤ Acute and Chronic Lymphoproliferative Diseases.</li> <li>➤ HIV Infection and AIDS.</li> <li>➤ Transplant Immunology.</li> <li>➤ Tumor Immunology and Immunotherapy.</li> <li>➤ Immunology of Pregnancy.</li> <li>➤ Immunological Emergencies.</li> <li>➤ Immune Response Evaluation in clinical practice: clinical and laboratory integration.</li> <li>➤ Patients with Immune Pathology.</li> </ul>	

107025 – Cirurgia Geral (General Surgery)

Type	Mandatory
Curricular Year	3 <sup>rd</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	14 ECTS
<p><u>Theoretical themes:</u></p> <ul style="list-style-type: none"> <li>➤ Fundamentals of Contemporary Surgery.</li> <li>➤ History of Surgery.</li> <li>➤ "So you want to be a Surgeon" - Surgery as a profession in the 21<sup>st</sup> century.</li> <li>➤ Evidence Based Surgery.</li> <li>➤ Approach to the surgical patient.</li> <li>➤ Surgical Infection.</li> <li>➤ Organ Transplantation.</li> <li>➤ Trauma.</li> <li>➤ Shock.</li> <li>➤ Non-traumatic Acute Abdomen.</li> <li>➤ New paradigms in modern surgery.</li> </ul> <p><u>Major Themes in Surgical Pathology:</u></p> <ul style="list-style-type: none"> <li>➤ Breast.</li> <li>➤ Thyroid.</li> <li>➤ Stomach.</li> <li>➤ Vascular.</li> <li>➤ Benign Colorectal.</li> <li>➤ Malignant Colorectal.</li> <li>➤ Liver and Portal Hypertension.</li> <li>➤ Benign Biliary Tract.</li> <li>➤ Malignant Biliary Tract.</li> <li>➤ Acute and chronic pancreatitis.</li> <li>➤ Malignant and pre-malignant pancreatic lesions.</li> <li>➤ Abdominal wall.</li> <li>➤ Obesity.</li> <li>➤ Complications in surgery.</li> </ul> <p><u>Main Clinical Syndromes in Surgery - TBL (Team-Based Learning) – sessions with several themes, in groups of 60 students. (per week).</u></p> <ul style="list-style-type: none"> <li>➤ Surgical Semiology.</li> <li>➤ Obstructive jaundice.</li> <li>➤ Digestive bleeding.</li> <li>➤ Intestinal Occlusion.</li> <li>➤ Peritonitis.</li> <li>➤ Benign and malignant pathology of the liver.</li> <li>➤ Malignant colorectal pathology.</li> </ul> <p><u>Practical Themes:</u></p> <ul style="list-style-type: none"> <li>➤ Behavior in the operating room / asepsis.</li> <li>➤ Classroom – Local NMS – attendance required (all students).</li> <li>➤ Invasive Techniques in the surgical patient.</li> <li>➤ Attitude and communication with the patient.</li> </ul> <p><u>Practical skills consolidation courses:</u></p>	

- Minor Surgery (Theoretical and Practical Course).
- Theoretical Course – On-site, students who do not attend the Theoretical Course cannot attend the Practical Course.
- ABC of Trauma.

107026 – Ética, Medicina e Sociedade (Ethics, Medicine and Society)

Type	Mandatory
Curricular Year	3 <sup>rd</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	4 ECTS)
<u>Ethics Deontology and Medical Law:</u>	
<ul style="list-style-type: none"> <li>➤ Definitions and Principals: Introduction.</li> <li>➤ Principles of Bioethics.</li> <li>➤ Introduction to the Deontology Code.</li> <li>➤ Medical Liability.</li> <li>➤ Legal-Ethical and Deontological Questions: Rights and Duties of Doctors and Patients.</li> <li>➤ Informed Consent.</li> <li>➤ Health Power of Attorney.</li> <li>➤ Medical Confidentiality.</li> <li>➤ Joint and Several Liability.</li> <li>➤ Medical Emergency.</li> <li>➤ Chronical Patient.</li> <li>➤ Liberty Deprived Patient.</li> <li>➤ Genic Therapy.</li> <li>➤ Rights of the Embryo.</li> <li>➤ Reproduction.</li> <li>➤ Transplantation.</li> <li>➤ Human experimentation.</li> <li>➤ Euthanasia/Disthanasia.</li> </ul>	
<u>Introduction to legal Medicine:</u>	
<ul style="list-style-type: none"> <li>➤ Introduction.</li> <li>➤ Concepts of Death.</li> <li>➤ General.</li> <li>➤ Semiology of Violent Death.</li> <li>➤ Medical Expert Assessment and Damage Evaluation in Civil Court, Criminal Proceedings and Work Indemnities.</li> <li>➤ Doctor Social Role.</li>   <li>➤ The Doctor, The Patient and The Society: Professionalism in Medicine.</li>   <li>➤ Burnout in doctors.</li> <li>➤ Doctors and the economic elements of health.</li> <li>➤ Health policies and programs implementation.</li> <li>➤ Organizational determinants in health.</li>   <li>➤ Health services management.</li> </ul>	

107027 – Infeção: do Diagnóstico Laboratorial à Clínica (Infection: from Laboratory to Clinical Diagnosis)

Type	Mandatory
Curricular Year	3 <sup>rd</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	5 ECTS
<ul style="list-style-type: none"> <li>➤ Introduction to Clinical Microbiology and Infectious Diseases: clinical and laboratory approach to the main infectious syndromes.</li> <li>➤ Diagnosis in Clinical Microbiology.</li> <li>➤ Mycology.</li> <li>➤ Virology.</li> <li>➤ Parasitology.</li> </ul>	

107028 – Imagiologia (Imagiology)

Type	Mandatory
Curricular Year	3 <sup>rd</sup> year
Semester	2 <sup>nd</sup> semester (only)
Credits	5 ECTS
<ul style="list-style-type: none"> <li>➤ Physical basis of imaging techniques, secondary effects, safety and contrast media. Appropriate criteria and protocols, advantages and disadvantages of methods.</li> <li>➤ Normal anatomy imaging, main imaging signs of pathological, evaluation by different methods.</li> <li>➤ Osteoarticular, Abdominal and Thoracic Imaging. Radiopediatrics Nuclear Medicine Women´s Imaging and Pelvis, Emergency Radiology, Neuroradiology and Head and Neck including local Viscerae. Interventional and Vascular Imaging Oncology.</li> </ul>	

107030 – Aparelho Motor (Locomotor System)

Type	Mandatory
Curricular Year	4 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	7 ECTS
<ul style="list-style-type: none"> <li>➤ Children's orthopedics.</li> <li>➤ Congenital deformities.</li> <li>➤ Osteoarticular infections.</li> <li>➤ Bone tumors.</li> <li>➤ Adult orthopedics.</li> <li>➤ Traumatology.</li> <li>➤ Clinical history, objective examination, and Investigations in Rheumatology.</li> <li>➤ Osteo-Metabolic Diseases, Osteoarthritis and microcrystalline diseases.</li> <li>➤ Systemic and Inflammatory Rheumatic Diseases Syndromes.</li> <li>➤ Musculoskeletal Diffuse and Regional syndromes.</li> <li>➤ Back Pain.</li> <li>➤ Rheumatic Pediatric Diseases.</li> <li>➤ Rheumatologic techniques.</li> <li>➤ General principles of PMR.</li> <li>➤ Physical agents.</li> <li>➤ Technical aids in rehabilitation.</li> <li>➤ Immobilization syndrome.</li> <li>➤ Frailty syndrome.</li> <li>➤ Rehab in Orthopedics, Rheumatology and Neurology.</li> </ul>	

107031 – Especialidades Médicas I (Medical Specialties I)

Type	Mandatory
Curricular Year	4 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	8 ECTS
<ul style="list-style-type: none"> <li>➤ Neurological Examination.</li> <li>➤ Headache.</li> <li>➤ Cognitive functions and Disorders.</li> <li>➤ Epilepsy and syncope.</li> <li>➤ Coma and Delirium.</li> <li>➤ Movement disorders.</li> <li>➤ Muscle and nerve disorders.</li> <li>➤ Vertigo.</li> <li>➤ Demyelinating disorders.</li> <li>➤ Stroke.</li> <li>➤ Sleep disorders.</li> <li>➤ Heart failure.</li> <li>➤ Diabetes.</li> <li>➤ Anemia.</li> <li>➤ Venous thromboembolism.</li> <li>➤ Fever of unknown origin.</li> <li>➤ Acute respiratory insufficiency.</li> <li>➤ HIV and AIDS.</li> <li>➤ Mycobacteriosis.</li> <li>➤ Central nervous system infections.</li> <li>➤ Malaria and other imported diseases.</li> <li>➤ Viral Hepatitis.</li> <li>➤ Sexually transmitted infections.</li> <li>➤ Infections associated with immune therapies.</li> </ul>	

107032 – Coração e Pulmão (Heart and Lung)

Type	Mandatory
Curricular Year	4 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	8 ECTS
<p><u>Cardiology / Cardiac Surgery:</u></p> <ul style="list-style-type: none"> <li>➤ Clinical Evaluation of the Cardiac Patient.</li> <li>➤ Imaging in Heart Disease.</li> <li>➤ EKG and Rhythm Disturbances.</li> <li>➤ Ischemic Disease / Acute Myocardial Infarction and Acute Coronary Syndromes.</li> <li>➤ Valvular Disease.</li> <li>➤ Diseases of the Thoracic Aorta.</li> <li>➤ Pericardial Diseases.</li> <li>➤ Heart Failure and Transplant.</li> <li>➤ Congenital Heart Disease.</li> </ul> <p><u>Pneumology / Thoracic Surgery:</u></p> <ul style="list-style-type: none"> <li>➤ Evaluation of the Respiratory Patient / Respiratory Physiology in Clinical Practice.</li> <li>➤ Imaging of the Thorax.</li> <li>➤ Thoracic Oncology.</li> <li>➤ Pleural Pathology.</li> <li>➤ Diseases of the Pulmonary Interstitium.</li> <li>➤ Thoracic Infections.</li> <li>➤ Airway Obstructive Disease.</li> <li>➤ Sleep Apnea.</li> <li>➤ Acute and Chronic Respiratory Failure.</li> </ul>	



107033 – Especialidades Cirúrgicas (Surgical Specialties)

Type	Mandatory
Curricular Year	4 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	7 ECTS
<p><u>Otorhinolaryngology:</u></p> <ul style="list-style-type: none"> <li>➤ Pathologies of the ear, nose, mouth, pharynx, larynx, and head and neck.</li> <li>➤ Otorhinolaryngology emergencies.</li> </ul> <p><u>Urology:</u></p> <ul style="list-style-type: none"> <li>➤ Urological oncology.</li> <li>➤ Functional urology.</li> <li>➤ Urological emergencies.</li> </ul> <p><u>Anesthesiology:</u></p> <ul style="list-style-type: none"> <li>➤ Safety and quality in anesthesia practice.</li> <li>➤ Preoperative evaluation.</li> <li>➤ Anesthetic techniques.</li> <li>➤ Monitoring in the OR.</li> <li>➤ Postoperative recovery period.</li> <li>➤ Pain.</li> <li>➤ Cardiopulmonary resuscitation.</li> </ul> <p><u>Angiology and Vascular Surgery:</u></p> <ul style="list-style-type: none"> <li>➤ Arterial diseases.</li> <li>➤ Venous diseases.</li> <li>➤ Vascular trauma.</li> <li>➤ Vascular anomalies and neoplasms.</li> <li>➤ Diabetic foot.</li> <li>➤ Vascular accesses.</li> </ul>	

107034 – Ginecologia e Obstetrícia (Gynecology and Obstetrics)

Type	Mandatory
Curricular Year	4 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	8 ECTS
<ul style="list-style-type: none"> <li>➤ The fetoplacental unit. Maternal adaptation to pregnancy.</li> <li>➤ Preconception.</li> <li>➤ Antepartum care. Prenatal diagnosis.</li> <li>➤ Ectopic pregnancy and miscarriage.</li> <li>➤ Fetal growth abnormalities.</li> <li>➤ Multifetal gestation.</li> <li>➤ Infections and pregnancy.</li> <li>➤ Cardiovascular diseases and pregnancy (hypertension, pre-eclampsia, HELLP syndrome, cardiopathies).</li> <li>➤ Renal disease and pregnancy.</li> <li>➤ Anemia and pregnancy.</li> <li>➤ Endocrine disorders and pregnancy (diabetes Mellitus, Thyroid disease).</li> <li>➤ Third trimester bleeding.</li> <li>➤ Preterm labor and premature preterm rupture of membranes.</li> <li>➤ Intrapartum care.</li> <li>➤ Puerperium.</li> <li>➤ Vulvovaginitis; Sexually transmitted Infections; Pelvic inflammatory disease.</li> <li>➤ Pelvic pain, Endometriosis.</li> <li>➤ Amenorrhea.</li> <li>➤ Abnormal uterine bleeding.</li> <li>➤ Pelvic support defects and urinary incontinence.</li> <li>➤ Gynecologic cancer.</li> <li>➤ Menopause.</li> <li>➤ Infertility.</li> <li>➤ Breast pathology.</li> <li>➤ Contraception, abortion, female sexuality.</li> <li>➤ Clinical history and examination.</li> <li>➤ Basic procedures in obstetrics and gynecology.</li> </ul>	

107035 – Introdução à Pediatria e Saúde na Adolescência (Introduction to Pediatrics and Adolescent Health)

Type	Mandatory
Curricular Year	4 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	8 ECTS
<p><u>Introduction to Pediatrics:</u></p> <ul style="list-style-type: none"> <li>➤ Organization of pediatric care and health indicators.</li> <li>➤ Perinatal/neonatal medicine: assistance of the newborn in the delivery room and during the neonatal period. Recognition of the main perinatal and neonatal pathologies.</li> <li>➤ Anamnesis and physical examination in the pediatric patient, particularly in the newborn infant, in the older child and in the adolescent.</li> <li>➤ Knowledge of the physiology of growth and puberty.</li> <li>➤ Nutrition: breastfeeding, infant formula, complementary feeding, nutritional assessment using anthropometry and appropriate reference values.</li> <li>➤ Obesity prevention.</li> <li>➤ Psychomotor development and recognition of warning signs.</li> <li>➤ Immunizations included in the National Vaccination Program and others.</li> <li>➤ Key ages for follow-up outpatient visits.</li> <li>➤ Early recognition of congenital anomalies and their referral.</li> <li>➤ Preventive Pediatrics and Social Pediatrics: oral health, accidents and intoxications prevention, rationalization of television/computer/video games habits, detection and notification of abuse.</li> </ul> <p><u>Health in adolescence:</u></p> <ul style="list-style-type: none"> <li>➤ Interview with the adolescent and family.</li> <li>➤ Puberty and sexual maturation.</li> <li>➤ Physical activity and sports.</li> <li>➤ Neurobiological bases of behavior.</li> <li>➤ Emotional development, self-image, sleep, consumption and risk behaviors.</li> </ul>	

107036 – Sépsis e Infecção Grave (Sepsis and Severe Infection)

Type	Mandatory
Curricular Year	4 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	3,5 ECTS

A patient with Severe Infection presents a particularly high risk of death. Moreover, in recent years no significant pharmacological development improved its prognosis. Hence, opportunities to improve these patients' management are to do better with the available tools.

The aim of this Curricular Unit is to systematize the information available to accomplish a better approach of Sepsis, coming from large consensus on the concepts, definitions and proven effective interventions, whenever available.

The recent pandemic COVID19 has shown how important it is to have a rational attitude when choosing proven therapeutic interventions and not to treat patients based on momentary inspirations.

Learning objectives involve specific skills in medicine and surgery without focusing on specific subjects in these areas. That is, there will be a need to resort on knowledge from several basic medical sciences as well as various clinical areas although not explicitly mentioned. With this approach, we intend to promote clinical reasoning, stimulate the students' intellectual autonomy and develop a holistic view of the practice of medicine, always based on the best and most robust evidence available.

The paradigm shift in the approach of these patients begin with the creation of the Surviving Sepsis Campaign (SSC) and the consensus generated around this important initiative, which was reinforced by the publication of the recommendations SSC 2004, which were successively updated (last publication 2017 and an update in 2018 and 2019, and for COVID19 in 2020). These recommendations, as well as the initiative from the Institute of Healthcare Improvement (IHI), were instrumental to change and structure the management of sepsis and to systematize procedures. And, at the present time, it is recognized that the implementation of these procedures was responsible for a marked reduction in mortality of these patients worldwide. In addition, adaptations of these recommendations have also been made to low- and middle-income countries, with great success.

The syllabus are based on the subjects contained in Despacho n.º 4412/2018 (Diário da República, 2<sup>nd</sup> series - n.º 86 - May 4, 2018 - Model of the National Access Examination), namely those contained in list in the field Medicine - Infectious area of knowledge (except HIV / AIDS and tuberculosis - discussed in other CU). It should be noted that some of the programmatic contents contained in the aforementioned Despacho will not be specifically addressed (due to time limitation), namely imported malaria and Dengue (endemic in Madeira), since these are two frequent situations in Portugal. Therefore, students will have to prepare them and can clarify any doubts with their teachers. And in the face of pneumonia caused by SARS CoV2 this disease will also be addressed in the community-acquired pneumonia class, as it is a potential cause.

## 107037 – O Doente Idoso (Elderly Patient)

Type	Mandatory
Curricular Year	4 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	3,5 ECTS
<ul style="list-style-type: none"> <li>➤ Biological ageing, health, physical and mental disease in elderly people.</li> <li>➤ Concept of geriatric syndrome, its detection and related factors.</li> <li>➤ Concepts of functionality and frailty.</li> <li>➤ Multimorbidity, polypharmacy and deprescription.</li> <li>➤ Chronic Pain in the Elderly Patient.</li> <li>➤ Physical function, Sarcopenia and risk of falls in the elderly.</li> <li>➤ Palliative care and ethics and decision-making.</li> <li>➤ Old age people with neuropsychiatric disorders: a general approach.</li> <li>➤ Assessment of the nutritional status of the elderly.</li> <li>➤ Physical rehabilitation of the elderly.</li> <li>➤ Health promotion programs for the elderly.</li> <li>➤ Care transition.</li> <li>➤ Oncogeriatrics.</li> <li>➤ Comprehensive geriatric assessment and individual care plan, according to ethic and legal aspects, in accordance with an integrated multiprofessional approach.</li> </ul>	

## 107038 – Psicologia Médica (Medical Psychology)

Type	Mandatory
Curricular Year	4 <sup>th</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	4 ECTS
<ul style="list-style-type: none"> <li>➤ Psychology and Behavioral Sciences in Medicine. Models of mental functioning (e.g., neurobiological, psychodynamic, cognitive-behavioral, systemic, biopsychosocial).</li> <li>➤ Learning, cognition, motivation, emotions and personality in clinical contexts and public health.</li> <li>➤ Human development and the life cycle.</li> <li>➤ Stress, appraisal, coping and health (e.g., stress and burnout in Medicine).</li> <li>➤ Health and illness behaviors. Body-mind interactions (e.g., chronic pain). Placebo effects.</li> <li>➤ Adaptation to illness and healthcare. Aspects of palliative care. Death and grief.</li> <li>➤ Health and disease in families: circular relationships (e.g., impact on the family, family factors influencing prognosis).</li> <li>➤ Sociocultural contexts of health and disease.</li> <li>➤ Psychological aspects of e.g., cardiovascular diseases.</li> <li>➤ Clinical communication and doctor-patient relationships. Managing particular or difficult situations, breaking bad news. Adherence. Motivational interviewing and behavioral change.</li> </ul>	

107040 – Mecanismos Moleculares da Doença (Molecular Mechanisms of Disease)

Type	Mandatory
Curricular Year	5 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	3 ECTS
<ul style="list-style-type: none"> <li>➤ Research in Medicine.</li> <li>➤ Aging and diseases associated.</li> <li>➤ Neurodegenerative diseases.</li> <li>➤ Diabetes.</li> <li>➤ Chronic inflammation.</li> <li>➤ Oncobiology.</li> <li>➤ Rare Diseases.</li> <li>➤ New therapies.</li> </ul>	

107041 – Psiquiatria (Psychiatry)

Type	Mandatory
Curricular Year	5 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	8 ECTS
<ul style="list-style-type: none"> <li>➤ Principles of psychiatry and mental health: general framework, psychosocial determinants, impact, stigma and human rights.</li> <li>➤ Psychiatric disorders: epidemiology, etiopathogenic models, classification.</li> <li>➤ General principles of mental health care: promotion, prevention, treatment and rehabilitation/recovery.</li> <li>➤ Clinical assessment.</li> <li>➤ Psychiatric disorders (epidemiology, clinic, therapeutic approach).</li> <li>➤ Anxiety disorders.</li> <li>➤ Affective disorders.</li> <li>➤ Psychotic disorders.</li> <li>➤ Organic mental disorders.</li> <li>➤ Addictive disorders.</li> <li>➤ Personality disorders.</li> <li>➤ Psychiatric disorders of childhood and adolescence.</li> <li>➤ Old age psychiatric disorders.</li> </ul>	

## 107042 – Medicina Geral e Familiar (General and Family Medicine)

Type	Mandatory
Curricular Year	5th year
Semester	1st or 2nd semesters (available in both semesters)
Credits	8 ECTS
<u>Cognitive:</u>	
<ul style="list-style-type: none"> <li>➤ Organization of primary healthcare in Portugal.</li> <li>➤ Foundations of clinical reasoning in primary care.</li> <li>➤ Prevention strategies in family medicine and primary care.</li> <li>➤ The approach to common symptoms in family medicine.</li> <li>➤ The management of common health problems in primary healthcare.</li> </ul>	
<u>Procedural:</u>	
<ul style="list-style-type: none"> <li>➤ Supervised communication with patients.</li> <li>➤ Supervised communication with health professionals.</li> <li>➤ Simple procedures in primary care.</li> </ul>	

## 107043 – Terapêutica Médica (Medical Therapeutics)

Type	Mandatory
Curricular Year	5 <sup>th</sup> year
Semester	1 <sup>st</sup> semester (only)
Credits	3 ECTS
<ul style="list-style-type: none"> <li>➤ Basic notions of pharmaco-economic and of the type of studies required to validate the concepts.</li> <li>➤ Concepts of pharmaco-epidemiology and its fundamental principles.</li> <li>➤ Adverse effects and drug interaction: pharmacovigilance.</li> <li>➤ Concept of Evidence Based Medicine: protocols, clinical guidance and levels of recommendations.</li> <li>➤ Therapeutic implications and research into pharmacological treatment compared to conventional treatments.</li> <li>➤ Knowledge and application of common treatments according to the most common disorders of a systemic nature: cardiometabolic diseases (arterial hypertension, heart failure, diabetes mellitus), respiratory diseases, inflammation and pain management, antimicrobial treatment and classic immune suppression.</li> <li>➤ New therapeutic approaches with a predictable future impact: immunosuppression, gene therapy and stem cells.</li> <li>➤ Therapeutic management of the chronic patient and the elderly patient.</li> <li>➤ Polypharmacy: current status, risks and clinical, economic and social implications.</li> </ul>	

## 107044 – Pediatria (Pediatrics)

Type	Mandatory
Curricular Year	5 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	8 ECTS
<p>The contents of the lectures cover current pathology and frequent and serious clinical situations in pediatrics, starting from the "signs and symptoms" to the differential diagnosis of diseases, their therapy, prognosis and follow-up:</p> <ul style="list-style-type: none"> <li>➤ Clinical interview in pediatrics.</li> <li>➤ Introduction to therapy/prescription in pediatrics.</li> <li>➤ Simulation in pediatric teaching.</li> <li>➤ Poor weight progression.</li> <li>➤ Jaundice.</li> <li>➤ Diarrhea and vomiting.</li> <li>➤ The child with fever.</li> <li>➤ Water and electrolyte balance.</li> <li>➤ Changes in acid-based balance.</li> <li>➤ The child with cough.</li> <li>➤ Signs and symptoms of the upper airways.</li> <li>➤ Interpretation of X-rays in pediatrics.</li> <li>➤ The child with jaundice.</li> <li>➤ Antibiotics in pediatrics.</li> <li>➤ Infectious rashes.</li> <li>➤ Recurrent infections in pediatrics.</li> <li>➤ Sepsis and septic shock.</li> <li>➤ Signs and symptoms of heart disease.</li> <li>➤ Congenital heart disease.</li> <li>➤ Arrhythmias and acquired heart disease in pediatrics.</li> <li>➤ The child with oedema.</li> <li>➤ Urinary infection.</li> <li>➤ Management of hematuria in children.</li> <li>➤ Puberty changes.</li> <li>➤ Overweight children.</li> <li>➤ The child who does not grow.</li> <li>➤ Delayed psychomotor development.</li> <li>➤ Seizures in pediatric age.</li> <li>➤ The interpretation of blood count and anemias.</li> <li>➤ The bleeding child; Adenomegaly/splenomegaly.</li> <li>➤ Abdominal pain.</li> <li>➤ Burns.</li> <li>➤ Hydronephrosis.</li> <li>➤ Orthopedic signs and symptoms in children.</li> <li>➤ Hereditary metabolic disorders.</li> <li>➤ Pediatric palliative care.</li> <li>➤ Diabetes in children.</li> </ul>	



## 107045 – O Doente com Cancro (Patient with Cancer)

Type	Mandatory
Curricular Year	5 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	6 ECTS
<ul style="list-style-type: none"> <li>➤ Cancer epidemiology.</li> <li>➤ Cancer biology.</li> <li>➤ Pharmacologic treatment: chemotherapy, hormones and biologicals.</li> <li>➤ Local treatment: surgery and radiation.</li> <li>➤ Breast cancer.</li> <li>➤ Lung cancer.</li> <li>➤ Cancer of the esophagus and stomach.</li> <li>➤ Colorectal cancer.</li> <li>➤ Urologic cancer.</li> <li>➤ Gynecologic cancer.</li> <li>➤ Viral oncogenesis.</li> <li>➤ Pediatric oncology.</li> <li>➤ Skin cancer.</li> <li>➤ Neurooncology.</li> <li>➤ Sarcomas.</li> <li>➤ Oncologic emergencies.</li> <li>➤ Palliative care.</li> </ul>	

## 107046 – Especialidades Médicas II (Medical Specialties II)

Type	Mandatory
Curricular Year	5 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	12 ECTS
<p><u>Theoretical:</u> Comprehensive topics of each area taught, for the acquisition of key concepts.</p> <p><u>Practice:</u></p> <ul style="list-style-type: none"> <li>➤ Contact with the main pathologies, essential in clinical practice, in Gastroenterology, Dermatology, Endocrinology and Intensive Medicine.</li> <li>➤ Differential diagnosis, choice of the most appropriate diagnostic methods and complementary exams, as well as different therapeutic options, related to the pathologies taught.</li> <li>➤ Ability to exercise clinical practice in different scenarios (Ward, ICU and Emergency).</li> <li>➤ Acquisition of skills to communicate with patients, colleagues and other professionals.</li> <li>➤ Learning skills for approaching end-of-life patients and communicating with the family.</li> <li>➤ Development of skills for public exposure of clinical cases and options taken.</li> <li>➤ Understanding what it means to be a doctor, their professional identity and responsibility, as well as their values and attitudes.</li> </ul>	

107047 – Especialidades Médicas III (Medical Specialties III)

Type	Mandatory
Curricular Year	5 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	9 ECTS
<p><u>Theoretical:</u> Selected integrated themes, essential for building key concepts.</p> <p><u>Practices:</u></p> <ul style="list-style-type: none"> <li>➤ Exposure to key clinical contents in hematology; ophthalmology; nephrology; and transplantation (bone marrow, kidney, pancreas, liver, lungs and heart).</li> <li>➤ Differential diagnosis and treatment options in the above areas.</li> <li>➤ Ward teaching, ICU and Emergency.</li> <li>➤ Enhanced communication skills.</li> <li>➤ Enhance ability for exposition of complex clinical entities, and therapeutic options.</li> <li>➤ Ability to select appropriate clinical data and auxiliary laboratory and complementary tests.</li> <li>➤ Skills in end-of-life support and family contact.</li> <li>➤ Comprehensive and integrated understanding of “being a doctor”.</li> </ul>	

107049 – Preparação para a Prática Clínica (Preparation to Clinical Practice)

Type	Mandatory
Curricular Year	6 <sup>th</sup> year
Semester	Annual course
Credits	3 ECTS
<p>To achieve global integration of knowledge of the medical school common medical conditions are shown covered by physicians from various specialties in a descriptive format initially and, after, students will be invited to participate in the discussion of the best approach / best solution for the different clinical situations presented.</p>	

## 10700101 – Saúde Mental / Estágio Parcelar (Mental Health / Clinical Practice)

Type	Mandatory
Curricular Year	6 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	6 ECTS
<p>The Mental Health clerk focuses on three main dimensions: (i) clinical activity in the areas of adult and child, adolescent psychiatry; (ii) group seminars; (iii) remote practical activities, if necessary, to enhance the clinical activity. The contents are described in the "Graduate Outcomes of Portuguese Undergraduate Medical Education" document. The seminars include the following topics (language: Portuguese):</p> <ul style="list-style-type: none"> <li>➤ Mental State Examination.</li> <li>➤ Structured diagnostic interview.</li> <li>➤ Approach to the patient with delirium.</li> <li>➤ Approach to the patient with violent behavior.</li> <li>➤ Approach to the patient with alcohol withdrawal syndrome.</li> <li>➤ Approach to the patient after suicide attempt.</li> <li>➤ Approach to the patient with acute anxiety.</li> <li>➤ Approach to biopsychosocial therapeutic model.</li> </ul>	

## 10700102 – Cirurgia / Estágio Parcelar (Surgery / Clinical Practice)

Type	Mandatory
Curricular Year	6 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	8 ECTS
<p><u>Theoretical:</u></p> <ul style="list-style-type: none"> <li>➤ Behaviors and attitudes in a surgery ward.</li> <li>➤ Training, supervision and acquisition of necessary skills for those who practice invasive techniques.</li> <li>➤ Ethical considerations and informed consent.</li> <li>➤ Basic principles of infection control; Technique for carrying out sterile procedures.</li> <li>➤ Leadership and teamwork.</li> <li>➤ Principles of management in health care.</li> <li>➤ Role of simulation in pre-graduate teaching.</li> <li>➤ Clinical risk and performance in surgery.</li> <li>➤ Communication techniques.</li> <li>➤ Managing stress and prevention of burnout.</li> <li>➤ Nutrition and surgery.</li> <li>➤ Value-based medicine.</li> <li>➤ Trauma evaluation and management.</li> <li>➤ ERAS Program.</li> </ul> <p><u>Theoretical-practical:</u></p> <ul style="list-style-type: none"> <li>➤ Placement of peripheral venous access/venipuncture.</li> <li>➤ Handling of infusion systems and syringes.</li> <li>➤ Intra-dermal injection, intramuscular injection, intravenous injection, subcutaneous injection.</li> <li>➤ Blood culture harvest.</li> <li>➤ Harvest of arterial blood.</li> </ul>	

- Peripheral arterial line placement.
- Placement of central venous catheter (jugular, subclavian, femoral).
- Local anesthesia.
- Suture techniques.
- Abscess drainage.
- Approach of the patient with ingrown toenail.
- Approach to subungual hematoma.
- Tracheal intubation (nasoro).
- Difficult airway management.
- Emergency cricothyroidotomy.

Practical Teaching:

- Consultation: Follow-up of the tutor in the external consultation.
- Accomplishment of clinical history and objective examination.
- Discussion of diagnostic hypotheses and therapeutic proposals with the tutor.
- Realization of dressings.
- Admission: Daily observation of patients.
- Accomplishment of clinical history and clinical journals.
- Objective examination.
- Discussion of the diagnosis and therapeutic proposal of each case with the tutor.
- Realization of dressings.
- Operating room: Individual preparation for participation in surgical procedures.
- Participation in the surgical acts as 2<sup>nd</sup> assistant.
- Emergency: Tutoring during a period of 12 hours per week.
- Accomplishment of clinical history.
- Objective examination.
- Discussion of diagnostic and therapeutic proposals with the tutor.
- Accomplishment of acts in the small surgery.
- Disinfection and suturing of wounds.
- Drainage of abscesses.
- Service meetings and clinical sessions of the hospital: Participation in the clinical meetings of the General Surgery and Gastroenterology services and in the weekly clinical sessions of the Hospital.

Mini Congress

Scientific curiosity and the capacity for self-learning will be stimulated through the performance of a presentation paper at a seminar held at the end of the internship period. These studies should cover a clinical case accompanied during the internship and include a literature review on the presented pathology.

The TEAM course is organized by ATLS Portugal and the Portuguese Society of Surgery, according to the educational format proposed by the American College of Surgeons for medical students. Its objectives are:

- Describe the fundamental principles of the initial approach.
- Identify the correct sequence of priorities for approach.
- Review adequate resuscitation techniques.
- To value the (known) history of the patient.
- Understand the mechanisms of each injury.
- Identify concepts of "teamwork" in the treatment of severe trauma.

The TEAM course integrates a theoretical component and a practical component with four practical stalls: Airway, Shock, Vertebro-medullary trauma and RX in trauma. It is held at the beginning of each rotation, and attendance at both the lectures and

the practice stands in full is mandatory for the award of the Diploma of the Course. The basic support materials will be made available in Moodle.

10700103 – Ginecologia e Obstetrícia / Estágio Parcelar (Obstetrics and Gynecology / Clinical Practice)

Type	Mandatory
Curricular Year	6 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	6 ECTS
<p>The professional training in gynecology/obstetrics lasts four weeks and aims at a high level of individual responsibility and team integration of the future professional. The general goal is the acquisition of key skills required for good medical practice in gynecology and obstetrics. Students are to be involved in hospital practices under guidance always following closely the supervisor activity observing and/or conducting procedures which are of importance for their professional practice. The bulk of knowledge skills and attitudes assimilated during previous years in medical school mainly in the 4<sup>th</sup> year course of Gynecology and Obstetrics are to be consolidated throughout this training and to be framed in the broader area of Woman's Medicine. Whenever possible, the student should conduct consultations autonomously, with supervision limited to the last stage of the consultation and should, at the end of the internship. The Workshop "The Women" will be presented in person, or via Zoom, on the first week of training, and will summarize the most relevant topics in Gynecology and Obstetrics.</p>	

10700104 – Medicina / Estágio Parcelar (Internal Medicine / Clinical Practice)

Type	Mandatory
Curricular Year	6 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	9 ECTS
<p>Students must work daily on the wards, emergency and outpatients, where they will acquire proficiency to interview, perform a physical examination, select exams, propose a diagnosis, propose a treatment, and fully integrate with the clinical team.</p>	

10700105 – Medicina Geral e Familiar-Estágio Parcelar (General and Family Medicine-Clinical Practice)

Type	Mandatory
Curricular Year	6 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	6 ECTS
<p>During the four weeks of clerkship, students will practice:</p> <ul style="list-style-type: none"> <li>➤ The doctor-patient relationship.</li> <li>➤ Medical professionalism.</li> <li>➤ Clinical interviews.</li> <li>➤ Consultation techniques.</li> <li>➤ Collecting patient history (anamnesis).</li> <li>➤ Physical examination.</li> <li>➤ Using time as a diagnostic resource.</li> <li>➤ Probabilistic reasoning.</li> <li>➤ Decision making.</li> <li>➤ Prioritizing health problems.</li> <li>➤ Planning patient care.</li> <li>➤ Coordinating patient care.</li> <li>➤ Making clinical records.</li> <li>➤ Getting familiar with the electronic health record systems in use in the.</li> <li>➤ National Health Service.</li> </ul>	

10700106 – Pediatria-Estágio Parcelar (Pediatrics-Clinical Practice)

Type	Mandatory
Curricular Year	6 <sup>th</sup> year
Semester	1 <sup>st</sup> or 2 <sup>nd</sup> semesters (available in both semesters)
Credits	7 ECTS
<p>This 6<sup>th</sup> year Curricular Unit is a practical clerkship. The students are enrolled in clinical daily practice which translates to learning to perform, observing and doing. Communication with patients and parents follows the same steps; peer communication develops through participation in clinical rounds and department meetings, clinical case presentation and discussion and seminar presentation at the end of the rotation.</p>	