Master's Degree Course in Medicine and Surgery
Course: **Anatomic Pathology**
SDS: **MED/08**
ECTS: **14**
Professor **Luigi Maria Larocca**
E-mail: **luigimaria.larocca@unicamillus.org**

Professors**:**
Luigi Maria Larocca (5 ects) **email: luigimaria.larocca@unicamillus.org**
Vincenzo Arena (2 ects) **email: vincenzo.arena@unicamillus.org**
Francesco Pierconti (1 ects) **email: francesco.pierconti@unicamillus.org**
Piero Luigi Alò (2 ects) **email: pieroluigi.alo@unicamillus.org**
Vincenzo Fiorentino (2 ects) **email: vincenzof.89@hotmail.it**
Damiano Arciuolo (1 ects) **email: damiano.arciuolo@policlinicogemelli.it**
Esther Rossi (1 ects) **email: esther.rossi@unicamillus.org**

PREREQUISITES

Although there are no prerequisites, a knowledge of basic elements of chemistry, biology, anatomy, histology, microbiology, biochemistry and general pathology is necessary.

LEARNING OBJECTIVES

- Knowledge of the role of Anatomic Pathology in all clinical settings
- Knowledge of the procedures and the tools for carrying out a macroscopic examination
- Understanding of the principles that are the basis of a cytological and histological diagnosis

Students are expected to work towards meeting the following objectives:
• Knowledge and understanding (Dublin 1): To recognize morphological and functional differences between normal and pathological tissues and to understand, from a structural, morphological and functional perspective, the different types of pathological lesions.
• Applying knowledge and understanding (Dublin 2): Students will be able to interpret data originating from a laboratory of histopathology, to apply principles of diagnostic pathology. Students will be able to recognize the morphological characteristic of different pathological tissue and they will be introduced to the modern concept of personalized therapy
• Making judgments (Dublin 3): Students will be able to integrate pathological findings with clinical manifestations of diseases and to understand the mechanisms underlying signs and symptoms of diseases.
• Communication skills (Dublin 4): To become familiar with essential terminology related to human diseases and to the concepts of disease etiology, pathogenesis, morphological characteristics
• Learning skills (Dublin 5): Students will learn the morphological and functional alterations that pathogens and aberrant stimuli can induce in molecules, cells and tissues and their consequences for the entire organism as well as the basic defensive mechanisms in response to them.
The course is divided into two semesters that provide students with specific knowledge and understanding, as detailed below.
• Knowledge of the role of Anatomic Pathology in clinical settings related to organ disease.
• Knowledge of the procedures and the tools for carrying out a macroscopic examination in the above-mentioned clinical settings.
• Knowledge of the pre-analytical and analytical procedure for processing the material in the above-

mentioned clinical settings
• Understanding of the principles on which the histological and cytological diagnosis is based in the above-mentioned clinical settings.

LEARNING OUTCOMES
The expected learning outcomes are consistent with the general provisions of the Bologna Process and the specific provisions of Directive 2005/36 / EC. They are found within the European Qualifications Framework (Dublin descriptors) as follows:

Knowledge and understanding
The student will have to be able to identify the main anatomic-histological changes caused by the disease in the different organs and systems at the macroscopic, microscopic, ultrastructural and genetic/molecular level.
The student must be able to correlate the anatomic-histological pictures to specific semeiological and clinical pictures.

Applying knowledge and understanding
At the end of the course, the student will be able to identify the professional contribution of the pathologist in the diagnostic and therapeutic process of diseases.
Identify the interdependence between Pathological Anatomy, the general / specialist clinic and the diagnostic-instrumental disciplines (Radiology, Immunology, Clinical Chemistry, etc.) and communicate their requests with pathological clinical colleagues, modulating the type of cyto / histopathological analysis based on the clinical pictures of the patients.

Communication skills
At the end of the course, the student must know:
• how to use a specific scientific terminology in a manner consistent with the various contexts of the pathological anatomy laboratory;
• how to orally expose the arguments in an organized and coherent way;
• how to use a scientific language that is adequate and consistent with the topic of the discussion.

Making judgements:
At the end of the course, the student must know:
• how to carry out general assessments relating to the topics covered;
• how to distinguish the specific applications of Pathological Anatomy in articles of scientific literature;
• how to recognize the importance of a thorough knowledge of the topics consistent with an adequate medical education;
• how to identify the fundamental role of a correct theoretical knowledge of the subject in clinical practice.

Learning skills
At the end of the integrated teaching, the student will acquire skills useful to deepen and expand their knowledge in the field of the course, also through the consultation of scientific literature, databases, specialized websites.

SYLLABUS

• Introduction to Pathological Anatomy: activities of Pathological Anatomy; type of exams, definitive and intraoperative; specimen management; histological and cytological techniques including the various ancillary techniques with hints of molecular techniques.
• Pathology of the upper and lower respiratory tract: Non-neoplastic and neoplastic oral cavity pathology - Salivary gland pathology - Pharyngeal and laryngeal pathologies - Neonatal hyaline membrane disease - Pulmonary edema - Pulmonary embolism - Pulmonary emphysema - Pulmonary hypertension - Diffuse alveolar damage (DAD) and acute respiratory failure - Bacterial pneumonia and bronchopneumonia - Pulmonary tuberculosis - Interstitial pneumonia; pulmonary fibrosis - Bronchial asthma; extrinsic allergic alveolitis - Lung neoplasms - Pneumoconiosis - Pathology of the pleura.
• Cardiovascular pathology: Ischemic heart disease - Myocarditis - Pericarditis - Endocarditis - Primary cardiomyopathies - General information on cardiac malformations - Atherosclerosis - Aneurysms - Arteritis.
• Breast pathology: General - Non-carcinoma pathology - Breast proliferative disease - Breast cancer - General - Macroscopic and microscopic types - Screening methods - Prognostic factors - Morphological - Immunohistochemical - Ploidy.
• Pathology of the mediastinum, with particular regard to the thymic one.
• Pathology of the digestive system: Pathology of the esophagus - Non-neoplastic pathology of the stomach - Gastrointestinal polyps - Tumors of the stomach - Non-neoplastic pathology of the intestine with particular regard to inflammatory bowel diseases - Intestinal tumors - Histopathological diagnostic parameters of the liver - Acute and chronic hepatitis - Cholestatic pathology and alcoholic liver disease - Cirrhosis and hepatic carcinoma - Pathology of the transplanted liver - Pathology of the gallbladder and extra-hepatic biliary tract - Non-neoplastic pathology of the pancreas - Pancreatic tumors - Amyloidosis.
• Pathology of the uropoietic system and pathology of the female and male genital tract: Nephrotic syndrome - Nephritic syndrome - Main primary and secondary glomerulopathies - Pyelonephritis - Nephroangiosclerosis - Tumors of the kidney and excretory tracts (ureter and bladder) - Renal tuberculosis - Pathology of the prostate : Inflammatory pathology - Benign neoplastic pathology - Malignant neoplastic pathology - Prostate carcinoma - Morphology - Prognostic factors - Ovarian pathology: Non-neoplastic ovarian pathology - Neoplastic ovarian pathology - Benign neoplasm - Malignant neoplasm - Borderline tumors; Pathology of the uterine body: Pathology of the myometrium - Pathology of the endometrium - Pathology of the uterine cervix; Pathology of the testis: Non-neoplastic pathology - Neoplastic pathology (classification).
• Pathology of the central nervous system: Hypertension - Vascular diseases - Trauma - Inflammation & infections - Degenerative diseases - Neoplasms.
• Hematopathology: T lymphocyte ontogenesis - B lymphocyte ontogenesis - Morphofunction of peripheral lymphoid organs - Secondary follicle and germinal center in the immune response - Lymphadenitis and splenomegaly - Osteomedullary biopsy and chronic myeloproliferative neoplasms - B-cell non-Hodgkin's lymphomas - Hodgkin's lymphoma - T-cell non-Hodgkin's lymphomas.
• Skin and soft tissue pathology: Nevi - Melanomas - Basal- and squamous-cell carcinomas; major soft tissue tumors.
• Endocrine pathology: Pathology of the adenohypophysis: Pituitary adenomas - Lymphocytic adenohypophysitis - Rathke's cyst - Craniopharyngioma. Pathology of the adrenal gland: malformations, vascular pathology, inflammatory / infectious pathology. Adrenocortical disorders: Congenital hyperfunction - Primary hyperfunction - Macronodular hyperplasia - Myelolipoma - Adenomas - Carcinomas - Secondary hyperfunction - Hypofunction - Neoplastic pathology of the adrenal medulla: pheochromocytoma, neuroblastoma. Thyroid pathology: Malformations - Goiter -

Tumors - Thyroiditis.

COURSE STRUCTURE

The course is divided into two complementary parts (Pathological Anatomy 1 and Pathological Anatomy 2) in two consecutive academic semesters (1st and 2nd semester of the 3rd year).
The teaching is structured in lectures on selected topics proposing a study method that the student will also use in the activities of self-learning; constant attendance at lessons and integration through study on a systematic pathological anatomy text are strongly recommended.
Exercises will also be carried out on macroscopic pathological anatomy topics (autopsy findings) and on microscopic pathological anatomy topics on histological preparations chosen to cover various examples of organ pathology.

COURSE GRADE DETERMINATION

The verification of the students' preparation will take place with a written exam followed by an oral test. Written test will consist of 30 questions with multiple choice answers and each correct answer will be awarded one point. To access the oral exam, the student must have scored at least a minimum of 18 points. During the oral exam, the examining commission will evaluate the student's ability to apply the knowledge and make sure that the skills are adequate to know and correctly apply all that has been learned in pathological anatomy.
The following will also be assessed: making judgments, communication skills and learning skills as indicated in the Dublin descriptors.
In the assessment, knowledge and understanding have a weight of 40%, applied knowledge and understanding of 40% and independent judgment of 20%.

READING MATERIALS

- ROBBINS AND COTRAN, Pathologic Bases of Disease, Tenth Edition, Elsevier, 2020.
- ROBBINS AND COTRAN, Atlas of Pathology, Fourth Edition, Elsevier, 2015.
- ROBBINS AND COTRAN, Review of Pathology, Fifth Edition, Elsevier, 2021.
- Rubin's Pathology: Mechanisms of Human Disease, Eighth edition, Wolters Kluwer, 2019
- Lippincott's Illustrated Q&A Review of Rubin's Pathology, Second edition, Wolters Kluwer, 2011

AVAILABILITY

Students are received by appointment by writing to the following contact:
Prof. Luigi Maria Larocca
Email: luigimaria.larocca@unicamillus.org