UNICAMILLUS

Degree in Medicine & Surgery

COURSE: **ANATOMIC PATHOLOGY (Parte I)**
SSD: **MED/08**
CFU: **14**

Course Teachers

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PREREQUISITES
Knowledge of fundamentals of Biology, Anatomy, Histology and General Pathology is required.

LEARNING OBJECTIVES
The course of Anatomic Pathology (Part I) provides systematic treatment of the pathological fondements of diseases of the gastrointestinal, endocrine, breast, female and male genital apparatus.
At the end of the course, the student must be able to

- know the pathological characteristics of the main human diseases according to the program.
- Correlate the pathological framework with the related modifications that occur in other organs and systems and also with the instruments of the pathological diagnostics.
- Know the tools of cyto-histological diagnostics useful for a correct definition and / or staging of human lesions.
- Understand the the histopathological report in order to use it for patient management

Essential objectives of the course are :

- the acquisition of basic knowledge about the morphological, histopathological and biomolecular characteristics of the gastrointestinal, endocrine, breast, female and male genital systems pathologies.
- the acquisition of basic knowledge of the use of ancillary technologies such as immunohistochemistrya and molecular biology, in the diagnostic paths of the

gastrointestinal, endocrine, breast, female and male genital systems pathologies.

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

KNOWLEDGE AND UNDERSTANDING
At the end of this course the student will have to know:

- Know and explain the morphological, histopathological and biomolecular characteristics of the pathology of the gastrointestinal system.
- Know and explain the morphological, histopathological and biomolecular characteristics of the pathology of the endocrine system
- Know and explain the morphological, histopathological and biomolecular characteristics of the breast pathology
- Know and explain the morphological, histopathological and biomolecular characteristics of the pathology of the female genital system.
- Know and explain the morphological, histopathological and biomolecular characteristics of the pathology of the male genital system.
- Know and explain the application of immunohistochemical and biomolecular techniques in histopathological diagnostics of the pathologies of the gastrointestinal, endocrine, breast, female and male genital systems with particular regard to typing the lesions by the study of prognostic and predictive biomarkers.

ABILITY TO APPLY KNOWLEDGE AND UNDERSTANDING:
At the end of this course the student will be able to:

- Understand the fundaments of the use of morphological, immunophenotypic and bio-molecular information for a correct diagnostic and therapeutic approach to the gastrointestinal, endocrine, breast, female and male genital systems pathology.
- Use the acquired knowledge for the autonomous study concerning the main aspects of the anatomic pathology.
- Acquire knowledge, concerning diagnostic problems, new classifications and new biomolecular technologies of diseases of the gastrointestinal, endocrine, breast, female and male genital tract by the support of texts and / or the consultation of scientific literature.

The acquisition of this knowledge will be stimulated and controlled, during the course by in *itinere* profit tests and verified at the end of the course by a final exam.

Communication skills
At the end of the course, the student must know:

- Use appropriate scientific terminology in the fiel of anatomic pathology
- Expose the arguments in an organized and consistent manner
- Use of appropriate scientific language consistent with the subject matter of the discussion

Making judgements
At the end of the course, the student must know:

- make general assessments of the specific topics of the course
- Make general assessments related to the topics covered in the following modules: Cytopathology, Histopathology, Autopsy Technique, Autopsy and Clinical Diagnosis, Digital and Molecular Pathology Techniques .

- In the scientific literature, identify articles concerning technical applications of anatomic pathology

These expected outcomes will be measurable with the final exam.

COURSE SYLLABUS
Aims of Anatomical Pathology. Role of Anatomical Pathology in the diagnostic activity, in the training of medicine graduates and in the biomedical research.
Notes on the techniques of sectioning, fixation, processing and staining of histological samples. Importance and use of the various investigation methodologies in Anatomical Pathology: intraoperative histological examination; application of histochemistry, immunohistochemistry and molecular biology techniques to diagnostics histopathology.

THE GASTROINTESTINAL TRACT
ESOPHAGUS: Embryology, development, histology and physiologic morphology. Esophagitis, Barrett Esophagus, Benign and malignant tumors.
STOMACH: Embryology, development, histology and physiologic morphology. Gastritis, Peptic Ulcer Disease, Benign and malignant tumors.
SMALL and LARGE INTESTINES: Embryology, development, histology and physiologic morphology. Diverticulitis, Malabsorptive disease, Ischemic bowel disease, Enterocolitis (toxic, bacterial, viral, parasitic); Pseudomembranous colitis; Inflammatory bowel disease / IBD (segmental enterocolitis and ulcer-hemorrhagic rectocolitis); Polyps and polyposis; Benign and malignant tumors.
ANAL TRACT : Embryology, development, histology and physiologic morphology. Hemorrhoids; Benign and malignant tumors.
PERITONEUS: Acute inflammation; Effusions; Benign and malignant tumors.
LIVER and INTRAHEPATIC BILIARY TRACT: Embryology, development, histology and physiologic morphology. Acute and chronic hepatitis ; Alcolic and nonalcoholic fatty liver disease, Steatosis, Cirrhosis . Benign and malignant tumors of the liver. Tumors of intrahepatic biliary tract.
GALLBLADDER and EXTRA-HEPATIC BILIARY TRACT: Embryology, development, histology and physiologic morphology. Cholelithiasis and cholecystitis; Benign and malignant neoplasms of the gallbladder and the main biliary tract.
PANCREAS: Embryology, development, histology and physiologic morphology. Acute and chronic pancreatitis; Cystic fibrosis; Cysts and pseudo cysts; Benign and malignant tumors of the exocrine pancreas.

PATHOLOGY OF THE ENDOCRINE SYSTEM
PITUITARY: Embryology, development, histology and physiologic morphology. Clinical Manifestations of Pituitary Disease. Pituitary Adenomas and Hyperpituitarism (Prolactinomas; Growth Hormone Cell / Somatotroph Adenomas. ACTH Cell Corticotroph Adenomas. Other Anterior Pituitary Adenomas). Hypopituitarism. Pituitary Carcinoma. Posterior Pituitary Syndromes. Hypothalamic Suprasellar Tumors (Gliomas. Craniopharyngiomas).
PINEAL: Pinealomas.
THYROID: Embryology, development, histology and physiologic morphology. Hyperthyroidism. Hypothyroidism (Cretinism. Myxedema). Thyroiditis (Hashimoto Thyroiditis Subacute / Granulomatous. Thyroiditis. Subacute Lymphocytic / Painless Thyroiditis). Graves' Disease. Diffuse and Multinodular Goiters (Diffuse Nontoxic /Simple Goiter. Multinodular Goiter). Neoplasms of the Thyroid (Adenomas. Carcinomas).

PARATHYROID: Embryology, development, histology and physiologic morphology. Hyperparathyroidism (Primary Hyperparathyroidism. Secondary Hyperparathyroidism). Hypoparathyroidism. Pseudohypoparathyroidism.
ADRENAL: Embryology, development, histology and physiologic morphology. *Adrenal Cortex*: Adrenocortical Hyperfunction / Hyperadrenalism (Hypercortisolism (Cushing Syndrome). Primary Hyperaldosteronism. Adrenogenital Syndromes). Adrenocortical Insufficiency (Primary Acute Adrenocortical Insufficiency. Waterhouse-Friderichsen Syndrome. Primary Chronic Adrenocortical Insufficiency /Addison Disease. Secondary Adrenocortical Insufficiency). Adrenocortical Neoplasms. Other Lesions of the adrenal cortex. *Adrenal Medulla*: Pheochromocytoma. Other Lesions of the adrenal medulla.
ENDOCRINE PANCREAS: Diabetes Mellitus. Pancreatic Endocrine Neoplasms (Hyperinsulinism / Insulinoma. Zollinger-Ellison Syndrome / Gastrinomas).
MULTIPLE ENDOCRINE NEOPLASIA SYNDROMES (MEN): Type 1; Type 2.

PATHOLOGY OF THE BREAST
Embryology, development, histology and physiologic morphology. Inflammatory and reactive lesions. Benign papillary tumors. Fibroepithelial neoplasm (fibroadenomas and phylloids tumors). Flat epithelial atypia. Adenosis, ductal hyperplasia, atypical ductal hyperplasia. In situ carcinoma: ductal and lobular. Invasive carcinomas : no special types (NST), lobular, tubular, medullary. Prognostic and predictive markers : molecular classification, endocrine responsive neoplasm, triple negative tumors neoadjuvant chemotherapy breast changes. Mesenchimal neoplasm. Male breast pathology: gynecomastia, tumors.

PATHOLOGY OF THE FEMALE GENITAL TRACT
VULVA : Embryology, development, histology and physiologic morphology. Benign disease, precursor lesions, neoplastic lesions.
VAGINA : Embryology, development, histology and physiologic morphology, benign disease, precursor lesions, neoplastic lesions.
CERVIX : Embryology, development, histology and physiologic morphology, benign disease and cytologic screening of the cervix (PAP Test).
Precancerous lesions of the cervix. HPV infections and natural history of cervical carcinoma. Squamous carcinoma of the cervix. Adenocarcinoma of the cervix.
ENDOMETRIUM : Embryology, development, histology and physiologic morphology. Benign pathology, endometrial hyperplasia, endometrial carcinoma. Molecular classification of endometrial carcinomas. Carcinosarcomas. Stromal tumors.
MYOMETRIUM : leyomiomas. Leyomiosarcomas.
FALLOPPIAN TUBE and OVARY : Embryology, development, histology and physiologic morphology. Non neoplastic lesions. Epithelial tumors of the ovary. Sex cord stromal tumors of the ovary. Germ cell tumors of the ovary. Metastatic tumors to the ovary.
DISEASES OF THE PLACENTA
GESTATIONAL TROPHOBLASTIC TUMORS

PATHOLOGY OF THE MALE GENITAL TRACT
PENIS: Embryology, development, histology and physiologic morphology. Congenital Anomalies (Hypospadias and Epispadias. Phimosis). Inflammation. Benign and malignant tumors.
TESTIS and EPIDIDYMIS: Embryology, development, histology and physiologic morphology. Congenital Anomalies (Cryptorchidism). Regressive Changes (Atrophy and Decreased fertility). Inflammation (Nonspecific epididymitis and orchitis. Granulomatous /autoimmune orchitis. Specific inflammations). Vascular Disorders (Torsion). Tumors of spermatic cord and

epididymis. Testicular Tumors (Germ cell tumors. Tumors of sex cord–gonadal stroma. Gonadoblastoma. Testicular lymphoma). Lesions of tunica vaginalis.
PROSTATE: Embryology, development, histology and physiologic morphology. Inflammation. Benign Enlargement (Benign Prostatic Hyperplasia / BPH or Nodular Hyperplasia). Tumors (Adenocarcinoma, Miscellaneous Tumors and Tumor-like Conditions).

COURSE STRUCTURE
ANATOMIC PATHOLOGY course (Part I) consists of 14 CFU for a total of 140 hours structured in frontal teaching, exercises and evaluation of learning. Attendance is mandatory. The teaching is carried out by five Professors. The teaching will be carried out through lectures, exercises and practical activities.
Frontal teaching will be carried out with lessons divided into theoretical lessons of 2 hours based on the academic calendar. The teacher uses didactic tools such as presentations organized in powerpoint files with explanatory diagrams, illustrations, macroscopic and microscopic images and in films and animations. At the beginning of each lesson there will be a summary of the previous lesson in order to verify the correct understanding by the students. At the end of the theory relating to each topic, theoretical-practical examples will follow that will illustrate their application in practice.

COURSE GRADE DETERMINATION
Students' preparation will be verified by oral interview. During the oral test the Examining Committee will evaluate:
autonomy of judgement (making judgements), communication skills and learning skills of the student according to the Dublin descriptors.
"knowledge and understanding skills" will have a weight of 40%, "applied knowledge and understanding skills" of 40% and "autonomy of judgment" of 20%.
The examination grade, expressed in thirtieths, will be established according to the following criteria:
Rejected: important lacks and/or inaccuracy in the knowledge and understanding of the topics; limited ability to analyze and synthesize the themes, frequent generalizations.
18-20: Just sufficient knowledge and understanding of the topics.
21-23: Discreet knowledge and understanding of the topics.
24-26: Good knowledge and understanding of the topics.
27-29: Complete knowledge and understanding of the topics.
30-30L: Very good level of knowledge and understanding of the topics.

SUPPORT ACTIVITIES
Practical integrative activity, such as laboratory exercises, will be communicated and planned during the course.

EXAMINING COMMISSION
President: Prof. Fattore Santeusanio Giuseppe (giuseppe.santeusanio@unicamillus.org)
Component: Prof. Alò Piero Luigi (pieroluigi.alo@unicamillus.org)
Component: Prof.ssa Anemona Lucia (lucia.anemona@unicamillus.org)
Component: Prof.ssa Bonanno Elena (elena.bonanno@unicamillus.org)
Component: Prof. Mauriello Alessandro (alessandro.mauriello@unicamillus.org)

READING MATERIALS
Recommended textbooks:
- *Robbins & Cotran Pathologic: Basis of Disease*
  Vinay Kumar, Abul K. Abbas, Jon C. Aster, 10th Ed (2021), Elsevier

- *Rubin's Pathology: Clinicopathologic Foundations of Medicine*
  7th Ed., Editor David S. Strayer and Emanuel Rubin, 2015, Wolters Kluwer Health

The student will be received additional didactic material, such as presentations and scientific articles.

STUDENT RECEPTION
The teachers will reply to all booking requests that will arrive via e-mail. Receive by appointment.