



SUBJECT OUTLINE

1. Programme of study description

1.1.	THE "CAROL DAVILA" UNIVERSITY OF MEDICINE AND PHARMACY
1.2.	THE FACULTY OF MEDICINE / 2-nd PRECLINICAL DEPARTMENT - MORPHOLOGICAL SCIENCES
1.3.	DISCIPLINE: Pathological Anatomy
1.4.	DOMAIN OF STUDY: Healthcare – regulated sector within the EU
1.5.	CYCLE OF STUDIES: BACHELOR'S DEGREE
1.6.	PROGRAMME OF STUDY: MEDICINE

2. Subject description

2.1.	Name of the subject/compulsory subject/elective subject within the discipline: Pathological Anatomy						
2.2.	Location of the discipline: "Victor Babeş" National Institute of Pathology						
2.3.	Course tenured coordinator: 1. Associate Professor Becheanu Gabriel 2. Associate Professor Ceaşu Mihail Constantin 3. Associate Professor Olinca Maria Victoria 4. Lecturer Ilieşiu Andreea 5. Lecturer Georgescu Tiberiu Augustin						
2.4.	Practicals/clinical rotations tenured coordinator: 1. Associate Professor Becheanu Gabriel 2. Associate Professor Ceaşu Mihail Constantin 3. Associate Professor Olinca Maria Victoria 4. Lecturer Dumitru Adrian Vasile 5. Lecturer Georgescu Tiberiu Augustin 6. Lecturer Ilieşiu Andreea 7. Assistant Professor Vrabie Camelia Doina 8. Assistant Professor Moldovan Valentin Tiberiu – determined period 9. Assistant Professor Lisievici Carmen Antonia						
2.5. Year of study	III	2.6. Semester	V - VI	2.7. Type of assessment	Written exam.	2.8. Subject classification	Fundamental Discipline

3. Total estimated time (hours/semester of didactic activity) – teaching module

Number of hours per week	4	Out of which: course	2	Clinical rotation	2
Total number of hours from curriculum	112	Out of which: course	56	Clinical rotation	56
Distribution of allotted time	28 weeks				Hours
Study from textbooks, courses, bibliography, and student notes					
Additional library study, study on specialized online platforms and field study					
Preparing seminars / laboratories, assignments, reports, portfolios and essays					
Tutoring					
Examinations					
Other activities					
Total hours of individual study	56				56
Number of credit points	Sem. V = 4 ; Sem. VI = 4				8



4. Prerequisites (where applicable)

4.1. of curriculum	Essential knowledge of anatomy and physiology of human body; Basic knowledge in the field of histology and cellular biology
4.2. of competencies	Usage of conventional optical microscopy

5. Requirements (where applicable)

5.1. for delivering the course	Multimedia projector
5.2. for delivering the clinical rotation	“Victor Babeș” National Institute of Research and Development and the hospital where the teacher performs his clinical activity

6. Acquired specific competencies

Professional competencies (expressed through knowledge and skills)	• Description of the concepts, theories and basic knowledge about the development of the disease, about signs and symptoms specific to each illness, useful for the coordination of the clinical and pathological diagnosis • to be able to interpret and analyse the risk factors for the ability to take the most adequate actions in prevention of diseases • knowledge, understanding and utilization of the specific language • explanation and interpretation • problems solving, application and transfer • constructive and critical contemplation • creativity and innovation adequate selection, connection and utilization of knowledge, abilities and other acquisitions (values and attitudes)
Transversal competencies (of role, of professional and personal development)	• to identify the purposes, the available resources conditions to complete the action; to identify the levels of work, the available time, the assigned deadlines and risks in different pathologies • to identify the roles and duties in a multidisciplinary teamwork, to apply communication techniques and efficient work in a team • to adequately use sources of information, the communication resources and assisted professional forming (web portals, speciality-related software application, data base, online courses etc.) • autonomy and responsibility • social interaction professional and personal development

7. Subject learning objectives (based on the scale of acquired specific competencies)

7.1. General learning objective	Pathology is the science (<i>logos</i>) that studies the diseases (<i>pathos</i>) in
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	the view of structural and functional consequences of the aggression of some factors against cells, tissues and organs (lesions). Traditional pathology is divided into general pathology (basic reactions of the cells and tissues to abnormal stimuli) and systemic pathology (the reaction of the organs and specialized tissues to more or less specified stimuli). Pathology includes the following features of diseases: etiology (the cause), pathogenesis (the mechanism of development of the lesions), structural changes that can be visible with the naked-eye (macroscopy) and with an optical microscope (microscopy), physiopathology (functional consequences of the morphological changes) in the view of clinical aspects (symptoms/ subjective complaints and signs/ objective complaints) and the prognosis of the disease. Education about the medical ethical laws in pathology. The founder of the pathology is Rudolf Virchow who was the first in the XIXth century to claim that in a lesion the changes begin from the molecules and/or the cellular structures.
7.2. Specific learning objectives	to establish a good and effective communication relationship between doctor and patient in pathology; development of the doctor-patient relationship, colleagues-doctor.

8. Content

8.1. Course	Teaching methods	Observations
1. Introduction 2. Cellular pathology - Reversible cellular injuries (hydropic degeneration) - Irreversible cellular injuries (necrosis, apoptosis) 3. Cellular pathology - Cellular adaptation (atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia, anaplasia) - Intra-cellular collection 4. Circulatory disturbances - Stasis - Vascular obstruction - Ischaemia 5. Circulatory disturbances - Haemorrhage - Shock, edema - Lymphatic pathology 6. Inflammation, infectious diseases, regeneration and reparation - General characteristics of the inflammation - Chemical mediators of the inflammation	The Assistant Lecturer is using multimedia presentations, lectures and discussions of the topics; also, besides the theoretic lectures, the Assistant Lecturers are explaining the practical procedures regarding the macroscopic and microscopic examination of the specimens featured in the lecture.	Courses are held in the lecture room



7. Inflammation, infectious diseases, regeneration and reparation - Classification of the inflammations - Regeneration, reparation 8. Genetic and development diseases - Malformations - Chromosomes anomalies 9. Genetic and development diseases - Genes anomalies - Polygenic disorders 10. Immunopathology - Characteristic of the cells of immune system - Autoimmune diseases 11. Immunopathology - Immunodeficiencies - Amyloidosis 12. Neoplasia General characteristics. Specific terms. Epidemiology. Mechanisms of carcinogenesis. Diagnosis of the neoplasia 13. Neoplasia - Benign tumors - Malignant tumors 14. Metabolic diseases and data on environment - pollutants with direct, indirect and delayed effect - metabolic diseases VIth semester (IIIrd year) – Systemic pathology 1. Cardiovascular system - Cardiac pathology - Pathology of the arteries, veins and lymph vessels 2. Cardiovascular system - Benign and malignant tumors of the vessels 3. Respiratory system - Pulmonary pathology - Pleural lesions 4. Respiratory system - Pathology of mediastinum		
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- Cytodiagnosis 5. Digestive system, adnexae and peritoneum - Pathology of the head and neck (congenital abnormalities, inflammations, tumors) - Pathology of the esophagus and stomach (malformations, esophagitis, varices, gastritis, ulcer, tumors) 6. Digestive system, adnexae and peritoneum - Pathology of small intestine, of colon, anal canal and appendix (congenital abnormalities, malabsorbtion, inflammatory bowel diseases, diverticuli, tumors)§ - Pathology of the liver and intrahepatic bile ducts (malformations, liver failure, hepatitis, cirrhosis, tumors) - Pathology of gallbladder and extrahepatic bile ducts (malformations, gallstones, cholecystitis, abnormalities) 7. Digestive system, adnexae and peritoneum - Pathology of the pancreas (malformations, inflammatory diseases, tumors) - Pathology of the peritoneum (effusions, inflammations, tumors) - Cytodiagnosis 8. Pathology of kidney, urinary tract and male genital system - Malformations of the kidneys and urinary tract, nephropathies - Lesions of the urinary tract 9. Pathology of kidney, urinary tract and male genital system - Malformations of the male genital system; orchiepididymitis, prostatitis, tumors - Cytodiagnosis		
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10. Pathology of female genital system and mammary gland - Infectious diseases - Malformations of the genital tract, cervicitis, dysplasia, endometritis, tumors - Pathology of the pregnancy (abortion, ectopic pregnancy, hydatidiform mole, tumors) 11. Pathology of female genital system and mammary gland - Pathology of the mammary gland (abnormalities, inflammations, neoplasia) - Cytodiagnosis 12. Pathology of hematopoietic tissue and lymph tissue - Pathology of hematopoiesis and leukopoiesis (morphology of anemias, leukemias, myelopathies) - Pathology of the lymph system (degenerative and inflammatory lymphadenopathies, lymphomas) - Pathology of spleen (hypofunction, lesions) 13. Pathology of the endocrine glands - Pathology of the hypothalamus, hypophysis, thyroid and parathyroids 14. Pathology of the central nervous system, musculoskeletal system and skin - Abnormalities, lesions, infections, neoplasms of the central nervous system - Pathology of the bones and articulations (lesions, tumors) - Pathology of the skin (lesions, infections, tumors)		
8.2. Clinical rotation	Teaching methods	Observations
Vth semester 1. Circulatory disturbances Examination of <i>macroscopic</i> and <i>microscopic</i> specimens representative	During the practical activities the Assistant Lecturers are using multimedia methods, and discuss the methods of filling out the Pathology documents. They	Practical lessons are held in special equipped rooms. Each microscopy



of: - Renal congestion - Pulmonary congestion 2. Circulatory disturbances Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Liver congestion - Thrombus - Renal infarction 3. Circulatory disturbances Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Myocardial infarction - Pulmonary infarction 4. Dystrophies Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Granular-vacuolar dystrophy - Hyalin dystrophy 5. Dystrophies Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Amyloidosis - Bile stasis in liver - Liver steatosis 6. Dystrophies Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Gaucher disease - Niemann-Pick disease 7. Non-specific inflammations Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Purulent meningitis - Acute phlegmonous appendicitis - Liver abscesses 8. Non-specific inflammations Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Epidemic parotiditis - Ulcero-necrotic enteritis - Fibrinous pleurisy - Granular tissue 9. Specific inflammations Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Rheumatic myocarditis - Ganglionic tuberculosis - Pulmonary tuberculosis 10. Specific inflammations	will also develop reports and held power point presentations about the most recent topics in national and international medical problems, discuss about necropsy techniques, and prelevation of the tissues for microscopic diagnosis. This activities are held once every 2 weeks.	lesson must be followed by macroscopy lessons held in the laboratories of the hospitals or in the practical lessons – rooms from the “Victor Babeş” National Institute.
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Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Syphilitic aortitis - CMV infection - Mycotic pyelonephritis - Actinomycosis 11. Benign tumors Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Papilloma - Polyps - Adenofibroma of breast 12. Benign tumors Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Hemangioma - Tumor of parotid gland - Ovarian teratoma - Uterine leiomyoma 13. Malignant tumors Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Basocellular carcinoma - Spinocellular carcinoma - Breast carcinoma 14. Malignant tumors Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Adenocarcinoma of the colon - Lymph node metastasis of adenocarcinoma - Sarcoma - Osteochondrosarcoma VIth semester 1. Pathology of the cardiovascular system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Endocarditis of heart valves - Rheumatic myocarditis - Fiedler myocarditis 2. Pathology of the cardiovascular system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Myocardial infarction - Fibrinous pericarditis - Atheroma - Syphilitic aortitis		
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3. Pathology of respiratory system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Lobar pneumonia - Bronchopneumonia - Interstitial pneumonia - Emphysema 4. Pathology of respiratory system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Pulmonary tuberculosis - Silicosis - Pulmonary carcinoma 5. Pathology of digestive system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Gastric ulcer - Mycotic gastritis - Ulcero-necrotic enteritis - "Signet ring" gastric carcinoma - Crohn's disease - Acute appendicitis - Adenocarcinoma of the colon 6. Pathology of digestive system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Hepatitis - Liver cirrhosis - Liver hemochromatosis - Malignant hepatoma - Cholecystitis - Cystosteatonecrosis of the pancreas - Cystic fibrosis of the pancreas 7. Pathology of the urinary system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Proliferative glomerulonephritis - Amyloid glomerulonephritis - Pyelonephritis 8. Pathology of the urinary system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Renal tuberculosis - Renal sclerosis - Grawitz tumor 9. Pathology of female genital		
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system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Simple hyperplasia of the endometrium without atypia - Adenomyosis - Fallopian pregnancy 10. Pathology of female genital system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Hydatidiform mole - Cervical carcinoma - Papillary cystadenoma of the ovary - Reclus' disease 11. Pathology of male genital system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Adenoma of the prostate - Testicular seminoma 12. Pathology of lymph system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - MALT lymphoma - Hodgkin lymphoma - non-Hodgkin lymphoma - Chronic lymphocytic leukemia 13. Pathology of thyroid Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Cystic colloid goiter - Graves disease - Hashimoto thyroiditis 14. Pathology of nervous system Examination of <u>macroscopic</u> and <u>microscopic</u> specimens representative of: - Poliomyelitis - Viral encephalitis - Neurinoma - Acute meningitis		
Bibliography for course and clinical rotation 1. Oxford Handbook of Clinical Pathology, Editura Hipocrate, București 2018, ISBN 978-606-94572-2-8 2. Robbins and Cotran Pathologic Basis of the Diseases, Professional Edition (IX), Vinay Kumar and Abdul Abbas, Jon Aster, Editura Elsevier, 2014 ISBN 9780323266161 3. Rubin's Pathology Clinicopathological Foundations of Medicine, ediția a VII-a, David S Stayer MD PhD, Emanuel Rubin MD, Editura Lippincott Williams and Wilkins, 2014 ISBN 9781451183900 4. Pathology secrets, Ivan Damjanov, Ed. Elsevier Mosby, Copyright 2002, 2008. 5. Ilieșiu Andreea, Ceaușu Mihai: Pathology Laboratory for medical students, "Carol Davila" University		



Press, Bucharest, 2017, ISBN 978-973-708-947-2

6. www.epathology.ro

9. Corroboration of the subject content with the expectations of the representatives of the epistemic community, professional associations, and major employers in the field of the programme of study

Medical training of the student of the 3rd year in Pathological Anatomy Discipline it focuses by: correct diagnosis, efficient communications, the best knowledge of the future doctor for an adequate communications with the the future employer. For this purpose, the future doctor should be able the understand the legislation issues.

10. Assessment

Type of activity	Assessment criteria	Assessment methods	Assessment weighting within the final grade
Course	Examination is made in accordance to the topics studied during the year. The student must obtain minimum 5 mark on each task.	The type of evaluation of the student using written test (single choice test with 30 questions).	75%
Clinical rotation	Examination is made in accordance to the topics studied during the year. The student must obtain minimum 5 mark on each task	Evaluation in the practical exam consists of examinations of 2 slides: V th semester – one slide from general pathology and one slide from pathology of the tumors picked up by each student. VI th semester – 2 slides from general pathology and tumoral pathology regarding systemic pathology picked up by each student.	25% periodic and final evaluation

Minimum performance standard

Minimum mark required for passing the exam is 5. Oral exam cumulated with the practical exam represents each a rejection exam.

At the end of the year study of pathology the students are able to recognize and to describe macroscopical and microscopical lesions from the general pathology and special pathology studied throughout the year, also the congenital malformations, circulatory disturbances, tumoral lesions, inflammations, vascular lesions etc.

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Signature of the course tenured coordinator

1.Associate Professor Becheanu Gabriel

2.Associate Professor Ceașu Mihail Constantin

3.Associate Professor Olinca Maria

Signature of the seminar tenured coordinator

1.Associate Professor Becheanu Gabriel

2.Associate Professor Ceașu Mihail Constantin

3.Associate Professor Olinca



**The "Carol Davila" University of Medicine and Pharmacy Bucharest
The Quality Assurance Commission**

Date of approval in the

Council of the Department: 10.10.2022

**Signature of the Head of the
Department:**