**FacultY MEDICINE NO.2**

**STUDY PROGRAM 0912.1 STOMATOLOGY**

**DEPARTMENT/CHAIR pathology**

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| --- | --- |
| APPROVEDat the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum in StomatologyMinutes No.\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_Chairman, DMSc, associate professorStepco Elena \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  | APPROVEDat the Council meeting of the Faculty StomatologyMinutes No.\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_Dean of Faculty, DMSc, associate professorSolomon Oleg \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  |
| APPROVEDapproved at the meeting of the chair Pathology Minutes No.6 of 01.03.2024Head of chair, dr. med. habil., associate professorMelnic Eugen \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  |

**SYLLABUS**

DISCIPLINE **Morphopathology**

**Integrated studies**

Type of course: **Compulsory discipline**

Curriculum developed by the team of authors:

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Chisinau, 2024

1. **INTRODUCTION**
* General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional / specialty training program

The morphopathology discipline studies the morphological substrate of diseases, the structural changes that occur during diseases at different levels, from the molecular to the level of cells, tissues, organs, the body. The identification of morphological lesions is a primary condition for establishing an objective diagnosis, which ensures the correctness of treatment and largely determines the prognosis and consequences of diseases.

Morphopathology is a discipline that is studied in years II-III, semesters IV-V, of the Faculty of Stomatology, whose analytical program correlates with a large number of preclinical disciplines (anatomy, embryology, histology, cellular and molecular biology, physiopathology) and clinics (internal medicine, surgery, cardiology, gynecology, neurology, dermatology, etc.). It includes the notions necessary to understand the lesional substrate of diseases, thus making the connection between fundamental sciences and medical practice. For this purpose, it aims to acquire the knowledge of general pathology regarding the fundamental processes at different structural levels; acquiring some notions of systemic pathology, related to the morphological changes in various diseases at the system level, indispensable for understanding the production mechanism and their manifestations.

* Mission of the curriculum (aim) in professional training

The mission of this study program is to substantiate the knowledge of general and special anatomical pathology necessary to understand the pathological processes in accordance with the etiology and mechanisms of disease production, mastering the macroscopic and microscopic aspects of different categories of lesions. Knowledge and understanding the way of producing, evolution and the consequences of lesions. Defining and identifying lesions according to macroscopic and histopathological aspects. Understanding the need to recognize injuries in the general context of the disease. Learning the technique of macroscopic and histopathological examination of organs and tissues. The knowledge obtained from the study of pathology will be integrated with other courses to provide means of evaluation and diagnosis of patients. Understanding the need to recognize injuries in the general context of the disease. Knowledge obtained from a study of pathomorphology will be included with other disciplines to provide methods of assessment and diagnosis of patients.

* Language (s) of the discipline: Romanian, Russian, English.
* Beneficiaries: students of the II-III years, Faculty of Stomatology

**II. MANAGEMENT OF THE DISCIPLINE**

|  |  |
| --- | --- |
| Code of discipline | F.04.O.039/ F.05.O.052 |
| Name of the discipline | Morphopathology |
| Person(s) in charge of the discipline | **Melnic Eugen** |
| Year  | II/III | Semester/Semesters | IV/V |
| Total number of hours, including: | **180** |
| Lectures | **15/15** | Practical/laboratory hours | **15/15** |
| Seminars | **15/15** | Self-training | **45/15** |
| Form of assessment | **E/E** | Number of credits | **3/2** |

**III. TRAINING AIMS WITHIN THE DISCIPLINE**

# At the end of the discipline study the student will be able to:

# at the level of knowledge and understanding:

* Acquiring a specific language of pathological anatomy, needed in dialogue with representatives of various medical specialties;
* Correlation of these notions with those presented in other clinical or preclinical disciplines;
* Correlation of clinical manifestations of diseases with macroscopic and microscopic changes.
* Formulation of a suitable differential diagnosis of lesions present in a given patient;
* Establishing the role of the anatomopathological examination in establishing the diagnosis.
* Establishing a correct diagnosis with clinical and anatomopathological data;
* Knowledge of the main lesions from anatomopathological point of view and understanding of the main histological changes as well as the mechanisms of their production.

# at the application level:

* To properly use disease-specific terminology;
* To be able to describe and comment from the anatomo-pathological point of view the diseases studied in the clinic;
* To be able to interpret a histopathological report;
* To sensitize future clinicians of the decisive importance of histopathological diagnosis for medical practice.

# at the integration level:

* To be able to evaluate the place and role of pathomorphology in the preclinical training of the medical student;
* To be competent to use the knowledge and methodology of pathological anatomy in the ability to explain the nature of pathological processes;
* To be able to make a connection between structure and function at molecular → cellular → tissue → organ level;
* To be able to deduce the possible causes of the suffering of the pathological processes and their consequences on the cell, the tissue, the body as a whole;
* To be able to implement the knowledge gained in the work of a researcher;
* To be competent to use critical and reliable scientific information obtained using the new information and communication technologies;
* To be able to use multimedia technology to receive, evaluate, store, produce, present and exchange information, and communicate and participate in networks via the internet;
* To be able to learn, which will contribute to the management of the professional route.
1. **PROVISIONAL TERMS AND CONDITIONS**
* Knowledge of the language of teaching;
* Competences confirmed in the disciplines of previous years of studies;
* Digital competences (use of the internet, document processing, electronic tables and presentations, use of graphics programs);
* Ability to communicate and team work;
* Qualities - tolerance, compassion, autonomy.
1. **THEMES AND ESTIMATE ALLOCATION OF HOURS**

***Lectures, practical hours/ laboratory hours/seminars and self-training***

| No.d/o | ТHEME | Number of hours |
| --- | --- | --- |
| Lectures | Practical hours | Self-training |
|  | Introduction to morphopathology, notions of disease, diagnosis, etiology, pathogenesis, medical errors, iatrogeny, cytopathology, ICD. | 1 | 2 | 3 |
|  | Reversible intra- and extracellular lesions (accumulations). Etiology of metabolic disorders, their classification. Hydropic, protein, carbohydrate and lipid degenerations, metabolic diseases of some amino acids. | 1 | 2 | 3 |
|  | Endogenous and exogenous pigments. Pathological calcinosis. Amyloidosis. | 1 | 2 | 3 |
|  | Irreversible tissue ∕ cellular lesions, morphological manifestations. Necrosis and apoptosis. Somatic death, signs of death, postmortem changes. Adaptation and compensation processes. Tissue regeneration. Cellular reactions of adaptation, growth and differentiation: atrophy, hypertrophy, hyperplasia, metaplasia. Aspects of cell/tissue regeneration. Incomplete regeneration by connective tissue. Angiogenesis, fibrosis. Wound healing. | 1 | 2 | 3 |
|  | Circulatory disorders (I). Morphological changes in edema, hyperemia, congestion and stasis. Acute and chronic ischemia. Infarction. | 1 | 2 | 3 |
|  | Circulatory disorders (I). Hemorrhage. Thrombosis. Embolism: pulmonary and systemic thromboembolism, lipid embolism, amniotic fluid embolism, cellular and gaseous embolism. Morphological lesions in shock.***Test No.1: themes 1-6.*** | 1 | 2 | 3 |
|  | Inflammation. Acute inflammation. Changes in the acute inflammatory focus. Classification of exudative inflammation. Serous, fibrinous, suppurative inflammation, variants of evolution, consequences. Abscess and phlegmon. Acute inflammatory lesions of the oral cavity and jaws (stomatitis, periapical abscess, osteomyelitis). Primary and secondary acute sialodenitis (epidemic parotiditis, cytomegaly). | 1 | 2 | 3 |
| 8. | Chronic inflammation. Cellular changes in chronic nonspecific inflammation. Interstitial inflammation. Granulomatous inflammation, generalities and classification. Morphological characteristic of granulomas in tuberculosis, syphilis, leprosy, cat-scratch disease, toxoplasmosis, foreign bodies, sarcoidosis. Chronic inflammatory lesions of the oral cavity (periapical granuloma). Chronic nonspecific and specific sialodenitis. | 1 | 2 | 3 |
| 9. | Odontogenic cysts of inflammatory origin. Developmental odontogenic and non-odontogenic cysts. Temporomandibular joint pathology. Causes, pathogenetic mechanisms, classification, macro- and microscopic changes, consequences and complications. | 1 | 2 | 3 |
| 10. | Pseudotumoral, hyperplastic and potentially malignant lesions of the mucosa of the oral cavity. Alterative superficial changes, white and red lesions. Causes, pathogenetic mechanisms, classification, macro and microscopic changes, consequences and complications. | 1 | 2 | 3 |
| 11. | Tumors: general aspects. Nomenclature. General characteristics of benign and malignant neoplasms. Carcinogenesis. Biology of tumor development. Tumor angiogenesis. Clinical-pathological changes in tumors. Grading and staging of malignant neoplasms. Macroscopic, histological and cytological characteristics, growth and propagation of tumors, the process of metastasis and recurrence. Epithelial and mesenchymal, benign and malignant tumors of the soft tissues of the oral cavity and jaws: oral squamous cell carcinoma, vascular tumors, osteoma and osteosarcoma of the jaws. | 1 | 2 | 3 |
| 12. | Benign and malignant odontogenic tumors of the jaws: causes, pathogenetic mechanisms, classification, macro- and microscopic changes, consequences and complications in the hard tissues, pulp and periapical tissue of the tooth. | 1 | 2 | 3 |
| 13. | Salivary gland pathology: developmental abnormalities. Causes, pathogenetic mechanisms, macro- and microscopic changes, consequences and complications of the following diseases: salivary cysts (mucocele), salivary lithiasis (sialolytic), Sjogren's syndrome. Salivary gland tumors: classification and theories of their development, benign and malignant epithelial tumors, benign and malignant mesenchymal tumors, lymphomas, secondary tumors.***Test No.2: themes 7-13.*** | 1 | 2 | 3 |
| 14. | Pathology of the hematopoietic system. Morphology of anemias, polycythemias. Leukemias and myeloproliferative diseases, acute and chronic leukemias, morphopathological characteristics. | 1 | 2 | 3 |
| 15. | Red-cyanotic lesions and pigmentary lesions: local and systemic factors of development, histopathological types, evolution and prognosis. Physiological and pathological pigmentation. Melanocytic tumors of the mucosa of the oral cavity: melanocytic nevi, oral melanoma. Lymphoid tumoral proliferations: Hodgkin's and non-Hodgkin's lymphomas. | 1 | 2 | 3 |
| 16. | Pathology of the teeth: Congenital malformations. Carious and non-carious lesions of dental hard tissues. | 1 | 2 | 1 |
| 17. | Autoimmune and inflammatory diseases of the oral mucosa: vesiculo-bullous (pemphigus and pemphigoid), spongiotic (allergic reactions, erythema multiforme) and lichenoid (lichen planus, lichenoid reaction, graft versus host disease, systemic lupus erythematosus). Causes, pathogenetic mechanisms, classification, macro- and microscopic changes, consequences and complications. | 1 | 2 | 1 |
| 18. | Pathology of the upper digestive system: Diseases of the esophagus: malformations, esophagitis, stenosis-dilation, tumors. Stomach diseases: gastritis, gastroduodenal ulcers, hyperplasia of the gastric mucosa, benign and malignant tumors of the stomach, congenital malformations. | 1 | 2 | 1 |
| 19. | Intestinal pathology: circulatory disorders, changes in the lumen (megacolon, diverticula), enterocolitis, inflammation of some intestinal segments (appendicitis, proctitis). Benign and malignant intestinal tumors. Inflammatory bowel disease (Crohn's disease, non-specific ulcerative colitis). Oral manifestations of intestinal pathologies. | 1 | 2 | 1 |
| 20. | Liver diseases: jaundice and cholestasis. Acute and chronic viral hepatitis. Bacterial, parasitic and helminthic infections. Autoimmune hepatitis. Drug-induced and toxic hepatitis: alcoholic liver disease. Non-alcoholic steatosis. Genetic errors of metabolism: hemochromatosis, Wilson's disease, alpha-1-antitrypsin deficiency, neonatal hepatitis. Liver cirrhosis. Portal hypertension. Benign and malignant tumors. Biliary tract pathology: cholelithiasis, acute and chronic cholangitis. Acute and chronic cholecystitis. Carcinoma of the gallbladder and extrahepatic bile ducts. Pathology of the exocrine pancreas: cystic fibrosis, acute and chronic pancreatitis, benign and malignant tumors.***Test No.3: themes 14-20.*** | 1 | 2 | 1 |
| 21. | Vascular pathology: Atherosclerosis, arterial hypertension, morphological changes. Vasculitis. Aneurysms, aortic dissection. Pathology of veins: thrombophlebitis, phlebothrombosis, varicose veins. | 1 | 2 | 1 |
| 22. | Heart pathology: acute and chronic ischemic heart disease. Myocardial infarction. Cardiac changes in systemic arterial hypertension. Valvulopathies: degenerative valvular changes. Acute and chronic rheumatic cardiac fever. Endocarditis. Primary and secondary cardiomyopathies. Myocarditis. Pathology of the pericardium. Congenital angiocardiopathies. Heart failure. Tumors of the heart. | 1 | 2 | 1 |
| 23. | Acute pulmonary pathology: nasopharyngitis, laryngitis, tracheitis and bronchitis. Respiratory distress syndrome in adults and children. Atelectasis. Pulmonary infections: Lobar pneumonia. Bronchopneumonia. Interstitial pneumonias. Lung abscesses. Chronic pulmonary pathology: chronic obstructive pulmonary disease, bronchial asthma, pulmonary emphysema, chronic bronchitis, bronchiectasis. Broncho-pulmonary tumors: bronchogenic carcinoma, paraneoplastic syndromes, neuroendocrine tumors, lung metastases. Pathology of the pleura. Pneumothorax. Primary and secondary pleural tumors. | 1 | 2 | 1 |
| 24. |  Infectious diseases, generalities. Aerogenous infections (influenza, measles, diphtheria). Tuberculosis, etiology, pathogenesis and typical lesions. Comparative morphological changes in different types of tuberculosis. Primary, secondary, miliary tuberculosis. Complications of each variant of tuberculosis. HIV/AIDS. | 1 | 2 | 1 |
| 25. | Kidney diseases. Congenital anomalies. Glomerular nephropathies: pathogenesis of glomerular lesions, clinical syndromes, histological changes. Acute diffuse postinfectious proliferative glomerulonephritis. Rapidly progressive (crescent) glomerulonephritis. Membranous glomerulonephritis. Minimal change disease (lipoid nephrosis). Glomerular lesions in systemic diseases. Tubulointerstitial nephropathies: acute tubular necrosis, tubulointerstitial nephritis, acute and chronic pyelonephritis, reflux nephropathy, drug- and toxin-induced tubulointerstitial nephritis. Vascular nephropathies: benign and malignant nephroangiosclerosis, renal artery stenosis. Renal tumors. | 1 | 2 | 1 |
| 26. | Pathology of the male genital system. Diseases of the testicle and epididymis: malformations, inflammations, tumors. Pathology of the vas deferens and the spermatic cord. Prostate pathology: prostatitis, nodular hyperplasia, prostate carcinoma. Pathology of the external genital organs. Disorders of sexual differentiation. Sexually transmitted infections (gonorrhea, chlamydia, trichomoniasis). Syphilis. Bladder and urinary tract pathology: congenital anomalies, inflammation, benign and malignant tumors. | 1 | 2 | 1 |
| 27. | Pathology of the female genital organs. Morphological methods of investigation. Pathology of the cervix: cervical-vaginal cytology; cervicitis, endocervical polyps, cervical intraepithelial neoplasia, squamous cell carcinoma. Pathology of the uterine body: endometriosis, adenomyosis, endometritis, dyshormonal lesions, benign and malignant tumors. Fallopian tubes pathology: acute and chronic inflammations, tumors. Pathology of the ovary: inflammation, polycystic ovary, pseudotumors and tumors. | 1 | 2 | 1 |
| 28. | Mammary gland pathology: developmental disorders, inflammation, proliferative and non-proliferative lesions. Mammary gland carcinoma: histological types, prognostic factors. Stromal tumors: fibroadenoma, phylloid tumor and sarcomas. Methods of morphological diagnosis of mammary gland carcinoma. Gynecomastia.***Test No.4: themes 21-28.*** | 1 | 2 | 1 |
| 29. |  Endocrine gland pathology. Pituitary adenomas. Pathology of the thyroid gland: hypothyroidism (cretinism, myxedema), hyperthyroidism (thyrotoxicosis), Basedow-Graves disease, acute and chronic thyroiditis, colloid goiter, benign and malignant tumors. Thyroid puncture-aspiration cytology. Pathology of the parathyroid glands: primary and secondary hyperparathyroidism. Pathology of the adrenal glands: hypercorticism (sr. Cushing), primary hyperaldosteronism, adrenogenital syndrome, primary acute adrenocortical insufficiency (sr. Waterhouse-Friderichsen), chronic adrenocortical insufficiency (Addison's disease). Adrenocortical tumors. Pathology of the adrenal medulla: pheochromocytoma, neuroblastoma, ganglioneuroma. Pathology of the endocrine pancreas: morphological changes in diabetes type I and II. Tumors: insulinoma, gastrinoma. | 1 | 2 | 1 |
| 30. | Sepsis: forms of sepsis; etiological classification. Toxic-septic shock. Morphological features and clinical correlations, complications and causes of death. Odontogenic sepsis. | 1 | 2 | 1 |
| **Total**  | **60** | **90** | **60** |

1. **PRACTICAL TOOLS PURCHASED AT THE END OF THE COURSE**

Mandatory essential practical tools are:

* Learning the method of describing macroscopic and microscopic lesions;
* Learning the method of formulating an anatomopathological diagnosis.
* Appropriate and correct use of specific medical terminology in the field of pathological anatomy and cytopathology.
* Application of differential diagnosis between different types of lesions depending on the study method.
* Learning the technique of collecting samples for histopathological examination.
* Awareness of the role of establishing the anatomopathological diagnosis following the intravital, post-mortem examination as well as for research activities.
* Understanding the need to correlate the anatomopathological diagnosis with other methods of investigation (ultrasound, radiological, microbiological examination, etc.), as the diagnosis is ultimately the result of teamwork.
* Development of skills regarding the preparation and presentation of a specialized report.
* Awareness of the need for permanent documentation and continuous practice of mastered techniques.
1. **OBJECTIVES AND CONTENT UNITS**

| **Objective** | **Content units** |
| --- | --- |
| **Theme (chapter) 1.** Introduction to pathomorphology, notions about disease, diagnosis, etiology, pathogenesis, ICD, diagnostic errors, cytopathology |
| * To define Pathology (pathological Anatomy, Cytopathology).
* To know the concepts of disease, etiology, pathogenesis, morphogenesis, consequences, clinical manifestations of diseases.
* To know the role of morphological lesions in the development and evolution of diseases.
* To know the structure of the diagnosis.
* To know the concept of iatrogenicity and medical error.
 | 1. Etiology and pathogenesis. Morphogenesis.
2. Diagnosis: main disease, concomitant diseases, complications, causes of death.
3. Department of pathological anatomy.
4. Objects of study in pathology: biopsies, autopsies, cytological specimens.
5. Classification and nomenclature of diseases. International Classification of Diseases.
6. Medical errors. Iatrogenies.
 |
| **Theme (chapter) 2.** Reversible and irreversible cell damage. Amyloidosis. Somatic death |
| * To know the concept and definition of morphological changes in degeneration and necrosis;
* To know the causes and structural changes of tissue and cellular lesions.
 | 1. Ultrastructural manifestations of cell lesions;
2. Causes of cell lesions and necrosis;
3. Concept and morphological manifestations of cellular / tissue degeneration, hydropic lipid, hyaline, fibrinoid degeneration;
4. Concept and types of necrosis, pathological changes and consequences of necrosis.
 |
| **Theme (chapter) 3.** Adaptation and compensation processes. Tissue regeneration. |
| * To define the notion of cell/tissue injury;
* To understand the difference between reversible and irreversible injuries;
* To know the morphological changes in different degenerative processes - protein, lipid, carbohydrate, cellular and extracellular;
* To know the disturbances in the metabolism of endogenous pigments and their morphological manifestations;
* To know the etiopathogenesis and morphofunctional significance of pathological calcinosis;
* To know the causes and structural changes of organs and tissues in amyloidosis;
* To define necrosis and apoptosis, to understand the difference between them;
* To know the forms of necrosis and their morphological characteristic;
* To know the postmortem changes.
 | 1. The concept of adaptation, hypertrophy, hyperplasia, atrophy, metaplasia;
2. The concept of regeneration and repair, capacity and process of tissue regeneration;
3. The concept, morphology and function of the granulation tissue and the organization process;
4. Disorders of hemoglobinogenic, proteinogenic and lipidogenic pigments metabolism;
5. The mechanisms of the development of pathological metastatic and dystrophic calcinosis;
6. Types of amyloidosis, predominant localization, morphological characteristics, diagnostic methods;
7. Variants of necrosis, morphopathological characteristics and consequences.
 |
| **Theme (chapter) 4.** Circulatory disorders |
| * To know the concept of active hyperemia (arterial) and passive hyperemia (congestion);
* To understand the morphological manifestations of acute and chronic congestive heart failure, the characteristics of hepatic and pulmonary congestion;
* To define thrombosis, embolism, infarction, causes, morphology, consequences;
* To know the concept and the types of embolism and the effects on the organism;
* To know the concept, causes and consequences of hemorrhage.
 | 1. Types of hyperemia, causes, morphology and consequences of congestion, peculiarities of chronic pulmonary and hepatic congestion;
2. Causes, mechanism of thrombosis, variants, morphological evolution and consequences;
3. Embolism, types, effects on the body;
4. The concept, causes, varieties and morphology of infarction;
5. Mechanisms of hemorrhages, consequences.
 |
| **Theme (chapter) 5.** Acute and chronic inflammation |
| * To define inflammation;
* To know the causes and pathogenetic mechanisms of inflammation, the role of mediators;
* To know hemodynamic and cellular lesions, characteristic of the inflammatory process;
* To know the classification of acute and chronic inflammation;
* To know the morphological peculiarities of serous, fibrinous, purulent, catarrhal, hemorrhagic inflammation;
* To understand the local and systemic clinical effects of inflammation.
 | 1. Inflammation, causes, local morphological lesions, pathogenesis, mediators;
2. Local clinical signs and systemic effects of inflammation;
3. Morphological classification of inflammation.
4. Variants of acute inflammation and their morphological characteristic;
5. Chronic inflammation: concept, basic pathological changes, classification;
6. The morphological characteristic of non-specific and specific granulomatous inflammation;
7. Consequences and clinical significance of inflammation.
 |
| **Theme (chapter) 6.** Inflammatory lesions of the oral cavity |
| * To know the terminology of inflammatory processes of the organs of the oral cavity;
* To know the morphological peculiarities of inflammatory lesions of the oral cavity and salivary glands.
 | 1. Inflammatory diseases of the oral cavity: stomatitis, gingivitis, glossitis, cheilitis, morphopathological characteristic;
2. Periapical granuloma;
3. Acute osteomyelitis of the mandible;
4. Acute and chronic sialoadenitis.
 |
| **Theme (chapter) 7.** Odontogenic and non-odontogenic cysts. Temporomandibular joint pathology |
| * To know the classification of odontogenic and non-odontogenic cysts;
* To know the morphological changes of different types of odontogenic and non-odontogenic cysts;
* To know the complications of odontogenic and non-odontogenic cysts;
* To know the causes, morphological changes and complications of benign arthropathies and monoarticular proliferative lesions of the temporomandibular joint;
* To know the synovial and ganglion cysts of the temporomandibular joint;
* To know benign and malignant tumors of the temporomandibular joint.
 | 1. Odontogenic cysts of inflammatory origin, classification;
2. Developmental odontogenic and non-odontogenic cysts, classification;
3. Benign arthropathies of the temporomandibular joint;
4. Benign and malignant tumors of the temporomandibular joint.
 |
| **Theme (chapter) 8.** Pseudotumoral, hyperplastic and potentially malignant lesions of the soft tissues of the oral cavity |
| * To understand the notions of "pseudotumoral lesion", "lesion with malignant potential" and "dysplasia";
* To know the pseudotumoral lesions of the soft tissues of the oral cavity;
* To know hyperplastic lesions;
* To know the potentially malignant lesions of the oral mucosa.
 | 1. The morphological characteristic of pyogenic granuloma, peripheral granuloma with giant cells, inflammatory fibrous hyperplasia, focal epithelial hyperplasia;
2. Dysplasia and degrees of dysplasia of the epithelium of the oral mucosa;
3. Chronic hyperplastic candidiasis, morphological manifestations.
 |
| **Theme (chapter) 9.** Tumors, general notions. Epithelial and mesenchymal tumors of the soft tissues of the oral cavity. Melanocytic tumors |
| * To define neoplasia and the properties of malignant cells;
* To know the classification of tumors according to their clinical and histopathological characteristics;
* To describe benign and malignant tumors, local and systemic effects, the action of tumors on the host;
* To define metastases and their mechanisms;
* To know the nomenclature and forms of carcinoma and sarcoma;
* To be familiar with the grades and stages of malignant tumors;
* To know the nomenclature of tumors and pseudotumoral processes;
* To understand the role of oncogenes in cancer, carcinogenic environmental factors;
* To know the more common types of benign and malignant tumors in the soft tissues of the oral cavity;
* To know the morphological manifestations, consequences and possible complications of the melanocytic nevus of the oral cavity mucosa;
* To know the clinical-morphological characteristics, consequences and complications of melanoma of the oral cavity mucosa.
* To understand the role of biopsy in the diagnosis and management of tumors.
 | 1. Benign and malignant tumors, the general characteristic, the criteria of benignity and malignancy;
2. Classification and nomenclature of tumors;
3. Frequent epithelial and mesenchymal epithelial tumors;
4. Morphological peculiarities of carcinoma and sarcoma;
5. Precancerous lesions, intraepithelial tumors;
6. Local and systemic effects of tumors;
7. Papilloma of the oral cavity mucosa;
8. Lipoma of the oral cavity;
9. Granular cell tumor of the tongue;
10. Hemangioma of the oral cavity;
11. Causes, grading and complications of oral squamous cell carcinoma;
12. Melanocytic nevi of the oral cavity;
13. Melanoma of the oral cavity.
 |
| **Theme (chapter) 10.** Odontogenic tumors and maxillofacial fibro-osseous lesions |
| * To know the general characteristic of odontogenic tumors and fibro-osseous lesions;
* To know the classification of benign and malignant odontogenic tumors;
* To understand the role of biopsy, immunohistochemical, cytopathological and molecular methods in the diagnosis of odontogenic tumors.
 | 1. Ameloblastoma: definition, types, micro-macroscopic changes and complications;
2. Ameloblastic fibroma, odontoma, odontogenic fibroma, odontogenic myxoma;
3. Fibrous dysplasia of the jaw, the morphological characteristic.
 |
| **Theme (chapter) 11.** Salivary gland pathology |
| * To describe the reactive changes of the salivary glands;
* To know the cystic lesions of the salivary glands, their varieties, the more frequent location;
* To identify benign lymphoepithelial lesions, Sjogren's syndrome;
* To be able to present the classification of benign and malignant epithelial tumors of the salivary glands;
* To be able to identify the morphological characteristics of pleomorphic adenoma and Warthin tumor of the salivary gland.
 | 1. Developmental anomalies and reactive changes of the salivary glands;
2. Cystic lesions;
3. Benign lymphoepithelial lesions, Sjogren's syndrome;
4. Pleomorphic salivary gland adenoma, morphological characteristic.
5. Warthin tumor;
6. Salivary gland mucoepidermoid carcinoma.
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| **Theme (chapter) 12.** Pathology of the hematopoietic system |
| * To define the notion of anemia, leukemia and lymphoma, their classification;
* Differentiate different types of anemia;
* To understand the difference between acute leukemia and chronic leukemia;
* Describe different types of leukemias and lymphomas and understand the basic pathological changes related to clinical symptoms;
* Describe different types of Hodgkin's and non-Hodgkin's lymphoma.
 | 1. Posthemorrhagic, deficiency and hemolytic anemias, morphological characteristics;
2. Hemoblastosis, classification;
3. Leukemia as a systemic tumor disease of hemopoietic tissues, causes, pathogenesis, morphological characteristics;
4. Acute leukemia, classification;
5. Chronic myelocytic and lymphocytic leukemia;
6. Plasmocytoma;
7. Hodgkin's lymphoma, mycosis fungoides.
 |
| **Theme (chapter) 13.** Tooth pathology: congenital malformations, carious and non-carious lesions of hard dental tissues |
| * To know anomalies of tooth development;
* To define enamel, dentine anomalies and complex structure anomalies;
* To know the acquired injuries of the teeth and the periodontium;
* To know the definition and clinical-morphological classification of dental caries;
* To know the concept of denticles;
* To know and define the non-carious lesions of dental hard tissues.
 | 1. Anomalies of teeth development: anomalies of number, volume, shape and structure;
2. Enamel, dentin anomalies and complex structure anomalies;
3. Acquired injuries of teeth and periodontium;
4. Dental caries: etiology, pathogenesis, classification, morphological characteristic;
5. Non-carious lesions of dental hard tissues (cuneiform defects, fluorosis, tooth erosion, acid necrosis of hard tissues).
 |
| **Theme (chapter) 14.** Autoimmune and vesiculo-bullous diseases of the oral cavity |
| * To know the inflammatory diseases of the oral mucosa;
* To know the classification of intraepithelial and subepithelial vesiculo-bullous diseases;
* To know pemphigoid and lichenoid spongiotic lesions;
* To know the etiology, pathogenetic mechanisms and morphological characteristics of viral infections affecting the oral cavity;
* To know the role of direct and indirect immunofluorescence in the diagnosis of vesiculo-bullous lesions of the mucosa of the oral cavity.
 | 1. Intraepithelial and subepithelial vesiculo-bullous diseases;
2. Pemphigoid and lichenoid spongiotic lesions;
3. Viral infections: herpes simplex, varicella-zoster, herpangina;
4. Immunological diseases: pemphigus vulgaris, bullous pemphigoid, dermatitis herpetiformis, erythema multiforme, lichen planus.
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| **Theme (chapter) 15.** Pathology of the gastrointestinal system |
| * To define the general categories of esophageal disorders;
* To know the variants of esophagitis according to the morphological picture;
* To define the morphology of gastritis;
* To know 2 morphological types of gastric carcinoma;
* To define the morphology of acute and chronic gastric ulcer, etiology and complications;
* To know ischemic bowel disease, macroscopic and microscopic aspects, complications;
* To be able to differentiate Crohn's disease and non-specific ulcerative colitis from a morphological point of view and correlations with clinical manifestations;
* To know the morphology of adenomatous polyps;
* To know the macro-microscopic peculiarities and clinical manifestations of colonic adenocarcinoma.
 | 1. Barrett's esophagus: clinical importance, morphofunctional changes and consequences;
2. Acute and chronic gastritis;
3. Gastric and duodenal peptic ulcer, morphological characteristics, complications, consequences;
4. Gastric carcinoma: precancerous conditions, clinical-morphological characteristics, histological types, metastasis peculiarities;
5. Non-specific ulcerative colitis and Crohn's disease: causes, mechanisms of development, pathological anatomy, complications;
6. Oral manifestations of intestinal pathologies;
7. Acute and chronic appendicitis;
8. Intestinal tumors: morphological manifestations, metastasis, complications.
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| **Theme (chapter) 16.** Diseases of the liver, bile ducts, and pancreas |
| * To define hepatosis, describe the dynamics of morphological lesions and the consequences;
* To describe morphologically the forms of alcoholic hepatitis, steatosis and cirrhosis;
* To differentiate steatosis and non-alcoholic steatohepatitis from alcoholic liver disease;
* To know the morphological characteristics of cirrhosis and their clinical significance;
* To differentiate between micronodular and macronodular cirrhosis;
* To differentiate the morphopathology of acute, fulminant and chronic hepatitis;
* To differentiate the morphogenetic forms of liver cirrhosis (postnecrotic, portal and biliary);
* To know the morphological peculiarities of primary and metastatic liver carcinomas;
* To know the causes, development mechanisms and morphological characteristics of gallstones;
* To know acute and chronic pancreatitis;
* To know the most common forms of carcinoma.
 | 1. Acute and chronic hepatosis;
2. Acute fulminant necrosis of the liver and liver cirrhosis, correlations and consequences;
3. Alcoholic steatosis of the liver;
4. Acute and chronic, primary and secondary hepatitis. Viral hepatitis: classification, etiology and pathogenesis, clinical-morphological forms, complications, consequences;
5. The interrelations between viral hepatitis and liver cirrhosis;
6. Acute and chronic alcoholic hepatitis;
7. Liver cirrhosis: morphogenesis, classification, morphological characteristic, complications. Portal hypertension. Hepatorenal syndrome;
8. Liver carcinoma;
9. Acute and chronic pancreatitis;
10. Pancreatic carcinoma.
 |
| **Theme (chapter) 17.** Pathology of the cardiovascular system |
| * To know the microscopic and macroscopic changes in atherosclerosis of the arteries;
* To know the complications of atherosclerosis of the arteries of different organs;
* Define ischemic heart disease;
* To know the morphological characteristics and complications of myocardial infarction;
* To describe the pathological changes in benign and malignant arterial hypertension;
* To describe the morphofunctional effects of hypertension on vital organs;
* To know heart lesions in rheumatic fever.
 | 1. Atherosclerosis and arterial hypertension: stages, clinical-morphological forms and their characteristics, causes of death;
2. Stable and unstable atherosclerotic plaque;
3. Hyaline and hyperplastic hypertensive arteriolosclerosis;
4. The interrelationships between atherosclerosis, hypertension and ischemic heart disease;
5. Essential and secondary hypertension;
6. Ischemic heart disease. Atherosclerotic cardiosclerosis;
7. Acute, recurrent and repeated myocardial infarction, morphopathology, complications, causes of death;
8. Endocarditis, myocarditis and rheumatic pericarditis: morphological variants, complications, consequences.
 |
| **Theme (chapter) 18.** Acute and chronic pulmonary pathology. Lung carcinoma |
| * To know the difference between lobar pneumonia and bronchopneumonia;
* To know the stages of lobar pneumonia, the morpho-clinical manifestations;
* To know the main forms of bronchopneumonia;
* To know the pulmonary and extrapulmonary complications of pneumonia;
* To identify the morphological changes associated with chronic bronchitis;
* To understand the interrelationships between chronic bronchitis, bronchiectasis and pulmonary emphysema;
* To know the morphological types of lung carcinoma, complications, prognosis;
* To know paraneoplastic syndromes in lung carcinoma.
 | 1. Acute bronchitis: causes and mechanisms of development, classification, morphological characteristic;
2. Lobar pneumonia and bronchopneumonia: etiology, pathogenesis, pathological anatomy, atypical forms, complications;
3. Acute destructive processes in the lungs. Lung abscess;
4. Chronic pulmonary pathology, classification;
5. Chronic bronchitis, bronchiectasis, pulmonary emphysema, bronchial asthma, interstitial pneumonia. Chronic pulmonary cord;
6. Lung carcinoma: precancerous conditions, clinical-morphological characteristics;
7. Pleurisy: causes, mechanisms of development, morphology, consequences.
 |
| **Theme (chapter) 19.** Infectious diseases, general characteristic. Aerogenous infections. Tuberculosis |
| * To determine the role of the host cell in bacterial infections;
* To know the ways in which bacteria can cause cell/tissue damage;
* To know the types of inflammatory reactions to different infectious agents;
* Be able to explain the emergence of new strains of drug-resistant microbial agents;
* To know the development mechanisms and morphological manifestations of airborne infections;
* To identify the structural elements of the tuberculous granuloma;
* To know the forms of tuberculosis based on the morphological picture and its correlation with clinical manifestations;
* To know the consequences and complications of tuberculosis.
 | 1. Mechanisms of injuries caused by viruses;
2. Mechanisms of injuries caused by bacteria;
3. Harmful effects of the host's immune response;
4. Acute viral respiratory infections: influenza, parainfluenza, measles, mumps, Covid-19 infection: etiology, pathogenesis, morphopathology, consequences, causes of death;
5. Bacterial aerogenous infections: meningococcal infection, diphtheria, scarlet fever: etiology, pathogenesis, morphopathology, consequences, causes of death;
6. Tuberculosis: etiology, pathogenesis, classification;
7. Primary tuberculosis;
8. Secondary tuberculosis;
9. Pathomorphosis of tuberculosis.
 |
| **Theme (chapter) 20.** Pathology of the osteoarticular system |
| * To know the main causes and mechanisms of acute renal failure;
* To describe uremic syndrome and its morphological and clinical manifestations;
* To understand the pathogenesis of glomerulonephritis;
* To know the morphological characteristics of extracapillary proliferative glomerulonephritis, complications and consequences;
* To define the nephritic syndrome and the nephrotic syndrome, to know in which renal conditions are found;
* To know the clinical and morphological characteristics of acute and chronic pyelonephritis;
* To understand the difference between fibrosis in chronic pyelonephritis and that in chronic glomerulonephritis and chronic benign arterial hypertension;
* To know the clear cell renal cell carcinoma, the morphological peculiarities;
* To know the acute and chronic inflammatory lesions of the urinary bladder; To identify the morphological characteristics of urinary bladder carcinoma.
 | 1. Glomerulonephritis: modern classification, etiology, pathogenesis, immunomorphological characteristics;
2. Acute renal failure - necrotic nephrosis: causes, pathogenesis, morphological characteristics, complications, consequences;
3. Chronic obstructive tubulopathy. Paraproteinemic nephrosis;
4. Tubulo-interstitial nephritis: etiology, pathogenesis, pathological anatomy, complications, consequences;
5. Acute and chronic pyelonephritis: etio-pathogenesis, pathological anatomy, complications, consequences;
6. Nephrolithiasis: etio-pathogenesis, pathological anatomy, complications, consequences, interconnection with pyelonephritis;
7. Renal tumors. Renal cell carcinoma;
8. Urinary bladder carcinoma: classification, morphopathology, complications.
 |
| **Theme (chapter) 21.** Diseases of the male genital system. Sexually transmitted infections |
| * To know the etiological factors in acute and chronic bacterial prostatitis;
* To know the causes and consequences of prostate tumors;
* To know the classification of testicular tumors. To be able to differentiate between the two major types of testicular germ cell tumors: seminomatous and non-seminomatous;
* To know the morpho-clinical characteristics of benign prostate hyperplasia;
* To know the morpho-clinical manifestations of prostate carcinoma, evolution, complications, causes of death;
* To know the etiology of syphilis, classification, morphological characteristics of primary, secondary and tertiary syphilis, consequences, complications.
 | 1. Benign prostatic hyperplasia: forms, morphological characteristics, complications;
2. Prostatic carcinoma: frequency, causes, morphological characteristics, complications;
3. Testicular carcinoma: classification, morphological characteristics, complications;
4. Tumors of the epididymis, spermatic cords and testicular membrane, morphology;
5. Syphilis: etiology, pathogenesis. Primary, secondary, tertiary syphilis, morphological manifestations;
6. Congenital syphilis (early, late).
 |
| **Theme (chapter) 22.** Pathology of the female genital system and mammary gland |
| * + To know LSIL and HSIL, cervical glandular and squamous neoplasia;
	+ To know the difference between CIN 3 and invasive carcinoma;
	+ To understand the classification of endometrial glandular hyperplasia and the clinical importance of hyperplasia with and without cytological atypia;
	+ To know carcinoma of the uterine body, precancerous conditions, morphological variants, complications;
	+ To know the classification of malignant ovarian tumors;
	+ To know the meaning of borderline ovarian tumors;
	+ To define the notions of nonproliferative and proliferative disease with/without mammary gland atypia, the role in mammary carcinoma;
	+ To know mammary gland carcinoma, precancerous conditions, morphological forms, metastasis;
	+ To know the variants of ectopic pregnancy, the causes, the complications;
	+ Differentiate complete and incomplete hydatidiform mole according to morphological criteria;
	+ To know the most common precursor lesions of gestational trophoblastic disease;
	+ To know the most common injuries of the placenta.
 | 1. Endometrial glandular hyperplasia, morphological characteristics, complications.
2. Acute and chronic endometritis: causes, pathogenesis, morphopathology, complications;
3. Uterine carcinoma: precancerous processes, classification, morphological characteristics;
4. Cervical carcinoma: histological forms, metastasis, complications;
5. Cervical carcinoma screening program, role in early detection;
6. Ovarian carcinoma: precancerous conditions, classification, morphological characteristics, metastasis, complications;
7. Acute and chronic mastitis;
8. Nonproliferative and proliferative mammary gland disease;
9. Carcinoma of the mammary gland: precancerous conditions, classification;
10. Miscarriage, ectopic pregnancy;
11. Hydatidiform mole, choriocarcinoma, morphological features, evolution, complications.
 |
| **Theme (chapter) 23.** Pathology of the endocrine system |
| * To know the morphological, molecular and clinical characteristics of pituitary adenomas;
* To differentiate the main macro-microscopic and clinical characteristics of the following thyroid neoplasms: follicular adenoma, papillary, follicular, medullary carcinoma;
* To know the most common causes of primary hyperparathyroidism;
* To know the clinical features and pathogenesis of Graves' disease;
* To correlate the pathogenesis of the various causes of Cushing's disease and syndrome;
* To understand the difference between type I and type II diabetes, the peculiarities of evolution, complications;
* To know the morphological substrate of diabetic micro- and macroangiopathy;
* To know the morphological lesions of the pancreas, heart, kidneys, retina, liver and other organs in diabetes;
* To know the complications and causes of death in diabetes.
 | 1. Acromegaly, Cushing's disease: etiology, pathogenesis, morphology, complications;
2. Diabetes insipidus: etiology, pathogenesis, morphology;
3. Addison's disease: etiology, pathogenesis, morphology;
4. Adrenal gland tumors, types, morphological, complications;
5. Goiter, classification. Hypothyroidism and thyroiditis, morphological characteristics;
6. Hyperthyroidism, Graves' disease;
7. Gland tumors; thyroid, morphology, complications.
8. Diabetes mellitus: etiology, pathogenesis, pathological anatomy. Diabetic macro- and microangiopathy. Diabetic glomerulosclerosis.
9. Complications of diabetes mellitus, causes of death.
 |
| **Theme (chapter) 24.** Sepsis |
| * To know the concept of sepsis, the etiopathogenetic peculiarities, the etiological, clinical, morphopathological classification;
* To know the morphological peculiarities of septicemia, septic shock, septicopyemia, chronic sepsis;
* To know the peculiarities of infectious endocarditis as a specific form of sepsis, the interrelationships with rheumatic and atherosclerotic valvulopathies and congenital heart development defects, complications.
 | 1. Sepsis, morphological variants;
2. Characteristic of the primary septic focus;
3. Local and general lesions in septicemia.
4. Local and general lesions in septicemia and septicopyemia;
5. Infectious endocarditis, evolution variants, morphological features.
 |

1. **PROFESSIONAL (SPECIFIC (SC)) AND TRANSVERSAL (TC) COMPETENCES AND STUDY FINalities**
* **Professional (specific) competences (PC)**
* PC1. The responsible execution of professional tasks with the application of the values and norms of professional ethics, as well as the provisions of the legislation in force;
* PC2. Adequate knowledge of the sciences about the structure of the body, physiological functions and behavior of the human body in various physiological and pathological conditions, as well as the relationships between health, physical and social environment;
* PC3. Interdisciplinary integration of the doctor's work in the team with the efficient use of all resources;
* PC4. Conducting scientific research in the field of health and other branches of science.
* PC5. Promoting and ensuring the prestige of the medical profession and raising the professional level.
* **Transversal competences (TC)**
* TC1. Autonomy and responsibility in the activity.
* **Study finalities**
* To demonstrate the ability to analyze the legitimacy of the development of structural lesions of organs and organ systems, applying basic anatomical-physiological knowledge, modern clinical-morphological and laboratory methods in order to establish the appropriate morphological diagnosis of various diseases and pathological processes.
* To demonstrate ability to correlate morphological lesions with clinical data.
* To demonstrate professionalism and high ethical standards in all aspects of medical practice, especially competence, honesty, integrity, empathy, respect for others, professional and social responsibility.
* To demonstrate the ability to acquire new information and data and critically assess their validity and applicability to professional decision-making, including the application of information technology to support clinical decision-making.
1. **STUDENT'S SELF-TRAINING**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Expected product | Implementation strategies | Assessment criteria | Implementation terms |
| 1. | **Work with information sources**  | Careful reading of lecture or the textbook material on the theme. Reading the questions on the theme, that requires a reflection on the subject. Refer to the list of additional information sources on the theme. Choose the source of additional information on the theme. Reading of the text entirely, carefully and writing down the essential content. Making generalizations and conclusions related to the importance of the theme/subject.  | The ability to extract the essential; skills to interpret; the volume of work. | Throughout the semester  |
| 2. | **Working with the workbook**  | To analyze the information and the images on the theme based on the material from lectures and textbook. Consistent solving the tasks. Drawing conclusions at the end of each lesson. The verification of the aims of the lesson in question and assessment of their achievement. Searching for additional information, using e-mail addresses and additional bibliography.  | The volume of work, solving situational problems, the ability to draw conclusions. | Throughout the semester  |
| 3. | **Application** **of various learning techniques**  |  | The volume of work, the degree of penetration into the essence of various themes, the level of scientific argumen-tation, quality of conclusions, elements of creativity, demonstration understanding the problem, formation of personal attitude. | Throughout the semester |
| 4. | **Working with materials online** | Self-assessment online, study of materials online on the WEBSITE of the department, expressing one’s own opinions through the forum and chat. | The number and duration of entries on the SITE, the results of self-assessment. | Throughout the semester |
| 5. | **Preparation and presentation of research**  | Choice of the theme for research, making plan the research plan, provision of the terms of realization. Setting PowerPoint project / theme components, purpose, results, conclusions, practical applications, bibliography. Reviews of colleges. Reviews of professors and lecturers.  | Volume of work, the degree of penetration into the essence of the theme of the project, the level of scientific argumentation, the quality of conclusions, elements of creativity, personal attitude formation, coherence of exposure and scientific correctness, graphic presentation, presen-tation method.  | Throughout the semester |

1. **METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT**
* **Teaching and learning methods used**

The teaching of the morphopathology discipline uses different methods and didactic procedures designed to achieve and effectively realize the objectives of the didactic process. In the theoretical lessons, with the help of traditional methods (lesson-exposure, lesson-conversation, synthesis lesson) are used and modern methods (lesson-debate, lesson-conference, problem lesson). Practical work uses forms of individual activity, in group, situation issues. In order to acquire deeper materials, different semiotic systems (scientific, graphic and computerized language) and teaching materials (tables, schemes, micro photographers) are used. Courses and extracurricular activities include Communication Technologies - PowerPoint presentations, on-line lessons.

 **Recommended learning methods**

* **Observation** - Identification of characteristic elements in different pathologies, comparison of normal and pathological structures.
* **Analysis** - Imaginary decomposition of the whole into component parts. Highlighting the essential elements. Studying each element as part of the whole.
* **Schema / figure analysis** - Selection of required information. Recognition based on knowledge and information selected structures indicated in the scheme, drawing. Analysis of the functions / role of recognized structures.
* **Comparison** - Analysis of the first object / process in a group and the determination of its essential features. Analysis of the second object / process and the determination of its essential features. Comparing objects / processes and highlighting common features. Comparing objects / processes and determining differences. Setting criteria for differentiation, which underlies the differential morphological diagnosis between several pathological processes. Formulation of conclusions.
* **Classification** - Identify the structures / processes needed to be classified. Determining the criteria on which classification is to be made. Distribution of structures / processes by groups according to established criteria.
* **Schematic drawing** - Selection of elements to be included in the scheme. Playing the elements selected by different symbols / colors and indicating their relationships. Wording of an appropriate title and legend of the symbols used.
* **Modeling** - Identify and select the elements needed to model the phenomenon. The imaging (graphical, schematic) of the studied phenomenon. Realizing the phenomenon using the developed model. Formulation of conclusions, based on arguments or findings.
* **Experiment** - Formulation of a hypothesis, based on known facts, on the process / phenomenon studied. Verifying the hypothesis by performing the processes / phenomena studied under laboratory conditions. Formulation of conclusions, deduced from arguments or findings.
* **Applied** (specific to the discipline) **teaching strategies / technologies**

"Brainstorming", "Multi-voting", "The round table", "Group Interview", "Case Study", "Creative Controversy", "Focus-group technique", "Portfolio". Virtual Practices

* **Methods of assessment** (including the method of final mark calculation)

 **Current**: frontal and / or individual control by:

(a) applying docimological tests;

(b) solving problems / exercises;

(c) analysis of case studies;

(d) performing role-plays on the topics discussed;

(e) control works.

At the Morphopathology discipline, during two semesters of study, there are 4 tests consisting of 8 parts (4 computer tests and 4 practical skills), as follows:

  **Test No. 1** (computer testing and practical skills): Introduction to pat

homorphology. Reversible intra- and extracellular lesions (accumulations). Irreversible cellular lesions. Endogenous and exogenous pigments. Pathological calcinosis. Amyloidosis. Adaptation and compensation processes. Wound healing. Circulatory disorders (I). Circulatory (II).

 **Test No. 2** (computer testing and practical skills): Acute and chronic inflammation. Odontogenic and non-odontogenic cysts. Pseudotumoral lesions. Epithelial and mesenchymal tumors. Odontogenic tumors. Salivary gland pathology.

 **Test No. 3** (computer testing and practical skills): Pathology of the hematopoietic system. Melanocytic tumors. Pathology of the teeth. Autoimmune and vesiculo-bullous diseases. Pathology of the esophagus, stomach, intestine. Pathology of the liver, bile ducts and pancreas.

 **Test No. 4** (computer testing and practical skills): Atherosclerosis, arterial hypertension. Pathology of the heart. Acute and chronic pulmonary pathology. Airborne infections. Tuberculosis. Diseases of the kidneys and urinary tract. Diseases of the male genital system. Sexually transmitted infections. Diseases of the female genital system and mammary gland.

Thus, the formative assessment for each semester consists of 4 total tests (2 computer tests and 2 practical skills), each test is marked separately with grades from 0 to 10. Each test can be taken 3 times, plus once in the last week of the semester (attestation week). The semester average is formed from the sum of the marks accumulated from tests and practical skills during the semester of studies divided by 4.

The computer-based testing for each test consists of variants of 25 questions each (single choice and multiple choice). The student has a total of 25 minutes to answer the test. The evaluation is performed according to the criteria of the SIMU system of Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova.

The practical skills consist of identifying the name of the pathological processes and indications on 5 microscopic pieces for each of the test.

 **Final**: Exam

At the Morphopathology discipline there are 2 passing exams at the end of the 4th and 5th semester. Each exam consists of a computer-based test of 50 tests in all themes from the respective semester, of which 40% are single choice and 60% multiple choices. The student has a total of 50 minutes to complete the test. The test is graded from 0 to 10.

The subjects for exams (tests) are approved at the meeting of the department and are brought to the attention of students with at least one month until the session.

 **The final mark** consists of 2 components: the semester average grade consisting of 2 computer tests taken at the pathology department and 2 oral tests (practical skills) (coefficient 0.5). Computer testing held in the academic assessment center of Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova, coefficient 0.5.

**Method of mark rounding at different assessment stages**

|  |  |  |
| --- | --- | --- |
| Intermediate marks scale (annual average, marks from the examination stages)  | National Assessment System | ECTS Equivalent |
| **1,00-3,00** | **2** | **F** |
| **3,01-4,99** | **4** | **FX** |
| **5,00**  | **5**  | **E** |
| **5,01-5,50**  | **5,5**  |
| **5,51-6,0**  | **6**  |
| **6,01-6,50**  | **6,5**  | **D** |
| **6,51-7,00**  | **7**  |
| **7,01-7,50**  | **7,5**  | **C** |
| **7,51-8,00**  | **8**  |
| **8,01-8,50**  | **8,5**  | **B** |
| **8,51-9,00**  | **9**  |
| **9,01-9,50**  | **9,5**  | **A** |
| **9,51-10,0**  | **10**  |

The average annual mark and the marks of all stages of final examination (computer assisted, test, oral) - are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student’s record-book.

*Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations in the failed exam.*

1. **RECOMMENDED LITERATURE:**

*A. Compulsory:*

1. Lecture materials
2. Ie. Zota, V. Vataman. General morphopathology, Chișinău, 2014
3. Vinay Kumar, Abul K. Abbas, Jon C. Aster. Robbins Basic Pathology, tenth edition, 2018
4. Oral Pathology: Clinical Pathologic Correlations Mar 10, 2016 by Joseph A. Regezi DDS MS and James Sciubba DMD PhD
5. Vinay Kumar, Abul Abbas, Jon Aster. Robbins Basic Pathology. 9th ed. Elsevier Saunders, 2013.
6. Harsh Mohan. Textbook of Pathology, 7th edition, 2015.
7. Rosai, Juan, Lauren V. Ackerman, and Juan Rosai. Rosai and Ackerman's Surgical Pathology. Edinburgh: Mosby, 2011. Internet resource.
8. Steven G. Silverberg. Silverberg's Principles and Practice of Surgical Pathology and Cytopathology, 2-Volume Set. Churchill Livingstone/Elsevier, 2006.
9. Julian L. Burton, Guy Rutty. The Hospital Autopsy 3rd Edition: A Manual of Fundamental Autopsy Practice (Hodder Arnold Publication) Hardcover, 2010.
10. Edward C. Klatt. Robbins and Cotran – Atlas of pathology – international edition, 2014.
11. Alan Stevens, James S. Lowe, Ian Scott. Core Pathology, 2009.

*B. Additional:*

1. Jones Bruce. Atlas of Gross Pathology With Histologic Correlation, 2009.
2. Noel Weidner, Richard Cote, Saul Suster, Lawrence Weiss. Modern Surgical Pathology 2nd Edition, 2009
3. Molavi Diana. The Practice of Surgical Pathology, 2008
4. CD-O International Classification of Diseases for Oncology.

*C. WEB:*

 1. General Informations: www.path2.sote.hu

 2. Online available case center: http://casecenter-korb2.sote.hu/casecenter/

 3. Panoramic Viewer free download: http://www.3dhistech.com/

 4. Practice test: <http://casecenter-korb2.sote.hu/espractice/>

 5. <http://www.pathologyoutlines.com/>