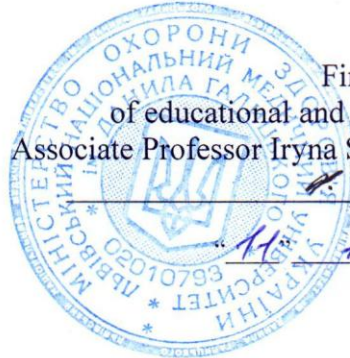


MINISTRY OF HEALTH IN UKRAINE
DANYLO HALYTSKYI LVIV NATIONAL MEDICAL UNIVERSITY
Department of Pathological Anatomy and Forensic Medicine

CONFIRM
First Vice-Rector
of educational and scientific work
Associate Professor Iryna SOLONYNKO



_____ 2023


EDUCATIONAL PROGRAM
in
«PATHOMORPHOLOGY with AUTOPSY COURSE»
for 2nd and 3rd year students of Dentistry Faculty
for preparation of specialists of the second (master's degree) level of higher education
OK15
area of knowledge 22 «Public Health»
specialty 221 «Dentistry»

Discussed and approved at the
Methodological meeting of the
Department of Pathological Anatomy
and Forensic Medicine,
protocol № 9 from 14.03.2023
Chief of the Department
Prof. **Andriy POSPISHEV**



Confirmed
by profile Methodological Committee
in medical and biological subjects
protocol № 2 from 23.03.2023
Chief of the profile Methodological
Committee
Prof. Alexander LUTZYK

Lviv-2023



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INTRODUCTION

Educational program in “Pathomorphology with Autopsy Course”

was created according to the academic standards of the *second (master’s) level*

area of knowledge 22 “*Public Health*”

specialty 221 “*Dentistry*”

educational qualification “*Master of Dentistry*”

professional qualification “*Dentist*”

Description of educational discipline (annotation)

Pathomorphology with Autopsy course - is an educational discipline which is based on the study by the students of medical biology, medical and biological physics, medical chemistry, biological and bioorganic chemistry, normal anatomy, histology, cytology and embryology, genetics, immunology, and is integrated with these disciplines; the study of discipline is based also on modern information of morphological research (electronic microscopy, immunohistochemistry, autoradiography, histochemistry and cytochemistry); makes the basis of the foundation of cellular pathology and general pathological processes, which determine of the morphological manifestations of different diseases in the aggregate; makes the basis of the foundation of knowledge of morphology of diseases on the different stages of their development (morphogenesis), structural bases of convalescence, complications and consequences; studies the variants of pathomorphosis of diseases, resulting in connection with changes of life’s conditions and as a consequence of the varied medical measures (pathology of therapy); makes the basis of the foundation for knowledge about organization of pathomorphological service and realization of its function. Comparison of morphological and clinical manifestations of disease on all stages of their development allows to the students to get skills of clinical-anatomical analysis, synthetic generalization of diagnostic signs of diseases and their faithful interpretation in causal-sequent relationships.

Study of structural background of human diseases consists of following main chapters: ***general and clinical pathomorphology (special pathological anatomy) with autopsy course*** and ***tanatology***.

General pathomorphology is related to studying of typical general pathological processes, different combination of which lead to development of morphological and functional peculiarities of certain human diseases.

Special (clinical) pathomorphology with autopsy course – makes a background for understanding of structural bases of human diseases and their clinical revealings, recovering, complications and outcomings; knowledge of diseases changes due to changes of life conditions as well as environment (process named pathomorphosis); knowledge of diseases strongly related to different medical procedures (pathology of treatment, pathology of intensive care, jatrogenic pathology).

Tanatology - is study about death of patients, its causes, mechanisms and manifestations; lays down a background of preventive intensive care.

Basic aim of an ***autopsy course*** – is studying of structure of pathological anatomy service as the integral component of the World system of Public Health; also students have to become acquainted with method of the clinico-anatomical analysis of a biopsies with its peculiarities in routine dental practice, operational and autopsies material and principles of a formulation of the diagnosis, medical death certificate.

Structure of educational discipline

Structure of educational discipline	Amount of hours			SRW	Academic year and semester	Type of control
	Total	Auditorial				
		Lectures	Practical classes			
Name of discipline: “Pathomorphology with autopsy course” 2 chapters	6 credits/ 180 hours	22	67	91	II year, IV semester III year, V semester	credit exam
According to semesters						
Chapter 1	3 credits/ 90 hours	12	32	46	IV	credit
Chapter 2	3 credits/ 90 hours	10	35	45	V	exam

Subject of study in Pathomorphology with autopsy course – is studying of human diseases structural background for fundamental basic of medicine and clinical picture of different diseases with following implementation of knowledge into practical work of physician.

Interdisciplinary links are based on studying during previous courses of medical biology, human anatomy, histology and embryology, physiology, biochemistry, pathophysiology.

1. Main aim and task of educational discipline

1.1. Main aim of studying of “Pathomorphology with autopsy course” as an educational discipline are theoretical knowledge of general pathological processes, their ethiology, pathogenetical mechanisms, microscopical and subcellular structural changes, morphological changes in cells, tissues and organs in cases of various diseases.

1.2. Main tasks of mentioned above discipline are following:

- to analyze structurally-functional intercommunications and sequence of stages of general pathological processes.
- to interpret pathology of cells and to ground clinical-morphological characteristics of general pathological processes which stipulate the disease’s manifestations.
- to interpret etiology, pathogenesis and morphological changes on the different stages of development diseases, structural base of convalescence, complications and consequences of diseases.
- to interpret morphological and clinical revealing of different diseases of organs of oral cavity and jaws during all stages of their development.
- receiving of practical skills in clinical-anatomical analysis, syntetical generalization of diagnostical signs of diseases and their correct interpretation.

Student has to know: ethiology, pathogenesis, basic gross-view changes and histological peculiarities of general pathological processes and diseases, including diseases of organs of oral-facial system by using of methods of pathological anatomy (macroscopical and histological).

1.3. Competences and results of studying of “Pathomorphology with autopsy course”.

Competency and training results developed by the subject (the correlation with the normative content of training acquired by those who are obtaining higher education formulated in the terms of study results of Higher Educational Standards).

According to the requirements of Higher Education Standards, the subject provides the development of the following competence

➤ **integral:** the ability to solve complex problems, including those of a research and innovation nature in the field of medicine; the ability to continue learning with a high degree of autonomy.

➤ **general:**

- ability to abstract thinking, analysis and synthesis (3K1);

- knowledge and understanding of subjects' field and understanding of professional activity (3K2);
 - ability to apply knowledge in practical situations (3K3);
 - ability to communicate in a state language both orally and in writing (3K4);
 - ability to communicate in English language (3K5);
 - ability to use information and communication technologies (3K6);
 - ability to search, process and analyze information from various sources (3K7);
 - ability to identify, pose and solve problems (3K9);
 - ability to be critical and self-critical (3K10);
 - ability to work in a team (3K11);
 - striving to preserve the environment (3K12);
 - ability to act socially responsibly and consciously (3K13);
 - ability to preserve and multiply the moral, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technologies, to use different types and forms of motor activity for active recreation and leading a healthy lifestyle (3K15);
- **special (professional, subject):**
- ability to collect medical information about the patient and analyze clinical data (ΦK1);
 - ability to interpret the results of laboratory and instrumental research (ΦK2);
 - ability to diagnose: determine preliminary, clinical, final, accompanying diagnosis, emergency conditions (ΦK3);
 - ability to maintain normative medical documentation (ΦK14);
 - processing of state, social and medical information (ΦK15);

Details of the competences are set out below in the matrix table of competences according to HPK descriptions.

The Matrix of Competences

№	Competence	Knowledge	Skills	Communication	Autonomy and responsibility
Integral competence					
Ability to solve complex problems, including those of a research and innovation nature in the field of dentistry; ability to continue learning with a high degree of autonomy					
General competences					
1.	Ability to abstract thinking, analysis and synthesis (3K1)	To know the methods of analysis, synthesis and further modern education	Be able to analyze information, make informed decisions, be able to acquire modern knowledge	Ability to effective communication in the course of analytical-synthetic activity	To be responsible for the analysis of acquired modern knowledge and their synthesis
2.	Knowledge and understanding of subjects' field and understanding of professional activity (3K2)	To know and understand the subjects' field, understand the basic principles of professional activity	To be able to use the acquired knowledge in the subject area and their understanding in professional activities	The ability to effectively form a communication strategy in professional activity	To be responsible for knowledge and understanding subject area and understanding of the principles of professional activity
3.	Ability to apply knowledge in practical situations (3K3)	To have knowledge of the appropriate level in theoretical and clinical disciplines	To be able to apply knowledge of medical disciplines in practical situations	The ability to effectively form a communication strategy in professional activity; ability to share professional knowledge	To be responsible for the correct application of relevant knowledge in practical situations
4.	Ability to communicate in a state language both orally and in writing (3K4)	To have deep knowledge of Ukrainian language, necessary for oral and written communication	To be able to apply knowledge of Ukrainian language for oral and written communication	To be able to apply knowledge of Ukrainian language to establish effective communication	To be responsible for observing the rules of Ukrainian language application

			6		
5.	Ability to communicate in English language (3K5)	To have basic knowledge of English language	To be able to apply knowledge of English language both orally and in writing	To use English language in professional activities	To be responsible for the level of English language proficiency, for the constant development of professional knowledge
6.	Ability to use information and communication technologies (3K6)	To have deep knowledge in the field of information and communication technologies, which are used in professional activities	To be able to use information and communication technologies in a professional field that requires updating and integration of knowledge	To use information and communication technologies in professional activities	To be responsible for the development of professional knowledge and skills in the field of information and communication technologies
7.	Ability to search, process and analyze information from various sources (3K7)	To know search platforms for obtaining relevant professional information	To be able to provide a quality search for information sources, process and analyze the received data	To establish contacts to ensure high-quality execution of the search for the necessary information, its processing and analysis	To be responsible for the results of the search, processing and analysis of professional information
9.	Ability to identify, pose and solve problems (3K9)	Possess knowledge of the appropriate level to identify problems, make informed decisions in order to solve them	Be able to identify, pose problems and justify the decisions made regarding their solution	Ability to communicate effectively within a professional team in order to make informed decisions	Be responsible for identifying and solving problems in a timely manner
10	Ability to be critical and self-critical (3K10)	To possess professional knowledge necessary for critical assessment of the situation and self-criticism	To be able to criticize constructively and be self-critical	To be able to adjust communication during critical evaluation	To be responsible for criticism and self-criticism
11	Ability to work in a team (3K11)	To know tactics and strategies of communication, laws and methods of communicative behavior	To be able to choose communication methods and strategies to ensure effective teamwork	To use communication strategies and interpersonal skills	To be responsible for the choice and tactics of the method of communication
12	Striving to preserve the environment (3K12)	To have knowledge necessary for preserving the environment	To strive preserving the environment	To use necessary communication links in order to preserve the surrounding environment	To be responsible for the preservation of the surrounding environment
13	Ability to act socially responsibly and consciously (3K13)	To have knowledge and be aware of social responsibility for the actions taken	To be socially responsible and conscious	To be able to establish communication in order to take socially responsible and conscious actions	To be responsible for deliberately committed actions
15	Ability to preserve and multiply the moral, cultural, scientific	To know about the necessity to preserve and multiply moral,	To preserve and multiply moral, cultural and scientific	To use all opportunities to preserve and increase	To be responsible for the preservation and multiplication

<p>values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technologies, to use different types and forms of motor activity for active recreation and leading a healthy lifestyle (3K15)</p>	<p>cultural and scientific values, based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society, the development of society, technology and technologies</p>	<p>values, based on an understanding of the history and patterns of development of the subject field and its place in the general system of knowledge about nature</p>	<p>moral, cultural and scientific heritage</p>	<p>of moral, cultural and scientific values, based on the understanding of the importance of the subject field as a science and its place in the general system of natural knowledge</p>
<p>Special (professional) competences</p>				
<p>Ability to collect medical information about the patient and analyze clinical data (ФК1)</p>	<p>To know the methods of obtaining medical information about the patient, to have knowledge about the analysis of clinical data</p>	<p>To be able to collect relevant medical information about a patient and analyze clinical data</p>	<p>To be able to establish communication links with the patient in order to obtain the necessary medical information about him</p>	<p>To be responsible for the received medical information in each specific case; be responsible for the correctness of clinical data analysis</p>
<p>Ability to interpret the results of laboratory and instrumental research (ФК2)</p>	<p>Know about the necessary laboratory and instrumental research methods</p>	<p>Be able to determine the necessary list of laboratory and instrumental research methods; to be able to evaluate their results</p>	<p>Use methods of communication in the process of determining the necessary list of laboratory and instrumental research methods, as well as in the process of interpreting the obtained results</p>	<p>To be responsible for selected list of necessary laboratory and instrumental research methods, as well as for the interpretation of their results</p>
<p>Ability to diagnose: determine preliminary, clinical, final, accompanying diagnosis, emergency conditions (ФК3)</p>	<p>To have specialized (professional) knowledge necessary for establishing preliminary, clinical, final and concomitant diagnoses, as well as for determining of emergency conditions</p>	<p>Be able to formulate preliminary, clinical, final and accompanying diagnoses; to be able to diagnose emergency conditions</p>	<p>Be able to effectively communicate with other members of professional team in order to establish correct preliminary, clinical, final and concomitant diagnoses, emergency conditions</p>	<p>To be responsible for established preliminary, clinical, final, concomitant diagnoses, urgent conditions</p>
<p>Ability to maintain normative medical documentation (ФК14)</p>	<p>Have knowledge of regulatory medical documentation and the rules for filling it out</p>	<p>Be able to fill in normative medical documentation</p>	<p>To be able to communicate effectively with other members of professional team in order to correctly maintain regulatory medical documentation</p>	<p>To be responsible for maintaining normative medical documentation</p>
<p>Processing of state, social and medical information (ФК15)</p>	<p>Have knowledge of methods of processing state, social and medical information</p>	<p>Be able to process state, social and medical information</p>	<p>To be able to communicate while processing state, social and medical information</p>	<p>Be responsible for processing of state, social and medical information</p>

Program learning outcomes determined by the standard of higher education of the specialty

№	Program learning outcomes	General Competences	Special Competences
PLO2 ИПН2	Collect information about the patient's general condition, evaluate the patient's psychomotor and physical development, the condition of the maxillofacial organs, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis	3K1, 3K2, 3K3, 3K4, 3K5, 3K6, 3K7, 3K9, 3K10, 3K11, 3K12, 3K13	ФК1, ФК2, ФК3, ФК14
PLO3 ИПН3	Prescribe and analyze additional (mandatory and optional) examination methods (laboratory, X-ray, functional and/or instrumental) of patients with diseases of the organs and tissues of the oral cavity and maxillofacial region for differential diagnosis of diseases	3K1, 3K2, 3K3, 3K4, 3K6, 3K9, 3K11	ФК3, ФК14, ФК15

2. Informational content of educational discipline

180 hours (6,0 credits) are spent on studying the discipline “**Pathomorphology with autopsy course**”.

Program has been divided into **2 semesters**:

IV semester – Part 1 «General Pathomorphology»

V semester – Part 2 «Special Pathomorphology with autopsy course»

3. Structure of discipline “Pathomorphology with autopsy course”

3.1. Part 1 “General Pathomorphology”

Theme	Lectures	Practical classes	SRW	Individual IWS
Topic 1. Object and tasks of pathomorphology. Methods of pathomorphological researches. Basic stages of development of pathomorphology. Injury. Intracellular and extracellular accumulation of proteins, carbohydrates and lipids. General information.	0,5	2	2	-
Topic 2. Ultrastructural pathology of cell. Cellular-matrix interactions. Adjustment of intracellular and extracellular mechanisms of metabolism.	-	-	2	-
Topic 3. Morphology of reversible and irreversible injury of cells and tissues. Morphology of cell injury and death of cells and tissues. Necrosis and apoptosis. Bases of thanatology. Death, definition, signs of death.	0,5	2	3	-
Topic 4. Chronic cell injury. Intracellular accumulations.	0,5	2	-	-
Topic 5. Disorganization of connective tissue. Hyaline changes. Amyloidosis.	0,5	2	2	-
Topic 6. Morphology of pathological accumulation of endogenous and exogenous pigments. Morphology of disorders of mineral metabolism. Calcification. Formation of stones.	-	2	2	-
Topic 7. Disturbances of water-electrolytic balance.	-	-	4	-
Topic 8. Disorders of blood circulation. Hyperemia, hemorrhage. Edema. Disorders of lymph circulation.	0,5	2	2	-
Topic 9. Disturbances of hemostasis: thrombosis, embolism. Infarction.	1	1	3	-

Topic 10. Disorders of microcirculation. Shock, DIC-syndrome.	0,5	1	4	-
Topic 11. Colloquim 1. Gross view changes and microscopical features of different types of cell injuries and disorders of blood and lymph flow. Postmortem examination.	-	2	-	-
Topic 12. General information about inflammation. Exudative inflammation. Morphology of exudative inflammation.	1	1	2	-
Topic 13. Chronic inflammation. Proliferative inflammation. Morphology of chronic inflammation. Granulomatosis.	1	1	2	-
Topic 14. Pathomorphology of immune system. Reactions and mechanisms of hypersensitivity. Autoimmune diseases. Immunodeficiency syndromes.	2	2	2	-
Topic 15. Processes of adaptation and compensation. Regeneration, reparation. Sclerosis.	-	2	2	-
Topic 16. General information about tumors. Nomenclature and morphological peculiarities of tumors of epithelial origin.	1	2	3	-
Topic 17. Nomenclature and morphological features of mesenchimal tumors.	0,5	1	2	-
Topic 18. Nomenclature and morphological features of tumors of neuroectodermal origin.	0,5	1	2	-
Topic 19. Tumors of hematopoetic tissue. Leukemias. Lymphomas.	-	2	2	-
Topic 20. Tumors of different organs.	-	-	2	-
Topic 21. Tumors an oral cavity.	2	2	3	-
Topic 22. Colloquim 2. Gross view changes and microscopical features of inflammation, immunopathological processes, adaptation, regeneration, tissue repair and tumors of different origin. Postmortem examination.	-	2	-	-
Concluding control				credit
Total amount of hours - 90	12	32	46	
Credits – 3				

3.2. Part 2 “Special pathomorphology with autopsy course”

Theme	Lectures	Practical classes	SRW	Individual RS
Topic 23. Introduction into nosology. Diagnosis and its structural components. Definitions of the main and direct causes of death. Pathological anatomy service and its place in Health care system. Autopsy report. Medical death certificate.	1	2,5	3	-
Topic 24. Anemias. Hemorrhagic syndromes: vasopathies, trombocytopathies, trombocytopenias, coagulopathies	-	-	3	-
Topic 25. Hypertension disease. Ischemic heart disease. Cerebro-vascular diseases.	1	2,5	2	-
Topic 26. Rheumatic fever. Systemic diseases of connective tissue. Systemic vasculitis.	-	2,5	2	-
Topic 27. Acute inflammatory diseases of respiratory system. Chronic obstructive pulmonary diseases. Cor pulmonale. Lung cancer.	-	2,5	2	-
Topic 28. Diseases of oropharynx, esophagus, stomach and intestine. Diseases of liver, biliary system and pancreas.	2	2,5	2	-
Topic 29. Diseases of central nervous system.	-	-	3	-
Topic 30. Diseases of endocrine system.	-	2,5	2	-

Topic 31. Colloquim 3. Gross view changes and microscopical features of blood system diseases, diseases of cardio-vascular, central nervous, respiratory and digestive systems, organs of endocrine system. Postmortem examination.	-	2,5	-	-
Topic 32. Diseases of kidneys: glomerulopathies, acute tubular necrosis, pyelonephritis, urolithiasis, chronic renal failure.	-	2,5	2	-
Topic 33. Diseases of female and male reproductive systems, pathology of pregnancy and postpartum period.	-	-	3	-
Topic 34. Pre- and perinatal pathology.	-	-	2	-
Topic 35. Diseases of skeletal muscle system. Parathyroid osteodegeneration, osteopetrosis, Paget's disease, fibrous dysplasia, osteomyelitis, diseases of joints, dystrophies of muscles, myasthenias.	-	-	2	-
Topic 36. Diseases connected with nutrition. Pathomorphological changes in some hypo- and avitaminoses. Radiation disease, professional diseases, hospital disease and others.	-	-	2	-
Topic 37. Diseases of hard tooth tissues, dental pulp and periapical tissues. Diseases of the gingival and parodontal tissues.	0,5	1,5	2	-
Topic 38. Diseases of the jaws, salivary glands, lips, tongue and soft tissue of oral cavity.	0,5	1	2	-
Topic 39. Tumors and tumor-like diseases of oral cavity. Congenital malformations of facial skull, jaws and organs of oral cavity.	1	2,5	3	-
Topic 40. Infectious and parasitic diseases. Description of infectious process. Intestinal infectious diseases. Bacterial infections: diphtheria, meningococcal infection.	1	2,5	2	-
Topic 41. Viral respiratory infections. Corona-virus disease (Covid-19). Rabies. Variola vera.	0,5	2,5	2	-
Topic 42. Infectious diseases with multiorgans' lesions. Tuberculosis. HIV-infection. Sepsis. Odontogenic sepsis.	0,5	2,5	2	-
Topic 43. Diseases, caused by fungi, protozoa and helminthes. Mycoses.	-	-	2	-
Topic 44. Colloquim 4. Gross view changes and microscopical features of kidneys, genital organs, oral-facial system and organs of oral cavity, infectious diseases. Postmortem examination.	-	2,5	-	-
Total amount of hours in part 2 – 90	10	35	45	
Credits – 3,0				
Total amount of hours in discipline – 180/6,0 credits	22	67	91	
Concluding control				exam

4. Thematic plan of lectures in discipline “Pathomorphology”

№	THEME	Amount of hours
Part I. General Pathomorphology		
1.	Pathomorphology as science, part of practical medicine and educational object. Table of contents, tasks, objects and methods of research of pathomorphology. Basic stages of development of pathomorphology. Morphology of reversible and irreversible injury of cells and tissues. Acute cell injury. Necrosis. Apoptosis. Chronic cell injury. Intracellular and extracellular accumulations. Definition of term “dystrophy”. Disorganization of connective tissue.	2
2.	Disorders of blood and lymph circulation.	2
3.	Host response to injury. Non-specific and specific defence mechanisms. General studies about inflammation. Exudative and proliferative inflammation. Morphology of exudative and proliferative inflammation.	2

4.	Immunopathological processes: hypersensitivity reactions, immunodeficiency states, autoimmune diseases. Pathomorphology of immunopathological processes.	2
5.	General information about neoplasia. Morphological features of tumors derived from epithelium, mesenchymal and neuroectodermal tissues.	2
6.	Tumors of odontogenic tissues, jaws, other organs of oral cavity	2
Amount of lectures' hours in part 1		12
Part 2. Special Pathomorphology with autopsy course		
7.	Introduction into nosology. Pathology of cardio-vascular system.	2
8.	Pathology of GIT organs. Liver pathology.	2
9.	Diseases of hard tooth tissues, dental pulp and periapical tissues. Diseases of the gingival and parodontal tissues. Diseases of the jaws, salivary glands, lips, tongue and soft tissue of oral cavity.	2
10.	Tumor-like diseases and cystic lesions of an oral cavity. Congenital malformations of facial skull, jaws and organs of oral cavity. Morphological revealing of non-infectious diseases in oral cavity.	2
11.	Infectious and parasitic diseases. Description of infectious process. Bacterial infections. Sepsis. Odontogenic sepsis. Morphological revealing of infectious diseases in oral cavity.	2
Amount of lectures' hours in part 2		10
Total amount of lecture's hours in discipline		22

5. Thematic plan of practical lessons in discipline “Pathomorphology with autopsy course”

№	THEME	Amount of hours
Part 1. General Pathomorphology		
1.	Pathomorphology as science, part of practical medicine and educational object. Table of contents, tasks, objects and methods of research of pathomorphology. Basic stages of development of pathomorphology. Injury. Degeneration. General information.	2
2.	Morphology of reversible and irreversible injury of cells and tissues. Necrosis and apoptosis. Death, definition, signs of death.	2
3.	Chronic cell injury. Intracellular accumulations.	2
4.	Disorganization of connective tissue. Hyaline changes. Amyloidosis.	2
5.	Disorders of pigments metabolism. Calcification. Stone's formation.	2
6.	Disorders of blood circulation: hyperemia, bleeding, hemorrhage. Edema. Disorders of lymph flow	2
7.	Disorders of hemostasis. Thrombosis. Embolism. Infarction. Disorders of micro-circulation. Shock. DIC-syndrome.	2
8.	Colloquim 1. Gross view changes and microscopical features of different types of cell injuries and disorders of blood and lymph flow. Postmortem examination.	2
9.	General information about inflammation. Exudative inflammation. Morphology of exudative inflammation. Chronic (proliferative) inflammation. Granulomatosis.	2
10.	Pathomorphology of immune system. Immunopathological processes. Hypersensitivity reactions. Autoimmune diseases. Immunodeficiency.	2
11.	Processes of adaptation and compensation. Regeneration and repair. Sclerosis.	2
12.	General information about tumors. Nomenclature and morphological peculiarities of tumors of epithelial origin.	2
13.	Nomenclature and morphological peculiarities of mesenchymal tumors and neuro-ectodermal tumors.	2
14.	Tumors of hematopoetic tissue. Leukemias. Lymphomas.	2
15.	Tumors of dental tissues, oral cavity and salivary glands	2
16.	Colloquim 2. Gross view changes and microscopical features of different types of inflammation, immunopathological processes, adaptation, regeneration, tissue repair and tumors of different origin. Postmortem examination.	2
Total amount of hours in part 1		32
Part 2. Special Pathomorphology with autopsy course		

17.	Introduction into nosology. Diagnosis and its structural components. Definitions of the main and direct causes of death. Pathological anatomy service and its place in Health care system. Autopsy report. Medical death certificate.	2,5
18.	Atherosclerosis. Hypertension disease and symptomatic hypertensions. Ischemic heart disease. Cerebro-vascular diseases.	2,5
19.	Rheumatic fever. Systemic diseases of connective tissue.	2,5
20.	Acute inflammatory diseases of respiratory system. Chronic obstructive pulmonary diseases. Cor pulmonale. Lung cancer.	2,5
21.	Diseases of oropharynx, esophagus, stomach and intestine. Diseases of liver, biliary system and pancreas.	2,5
22.	Diseases of endocrine system.	2,5
23.	Colloquim 3. Gross view changes and microscopical features of blood system diseases, diseases of cardio-vascular, central nervous, respiratory and digestive systems, organs of endocrine system. Postmortem examination	2,5
24.	Diseases of kidneys: glomerulopathies, acute tubular necrosis, pyelonephritis, urolithiasis, chronic renal failure.	2,5
25.	Diseases of hard tooth tissues, dental pulp and periapical tissues. Diseases of the gingival and parodontal tissues. Diseases of the jaws, salivary glands, lips, tongue and soft tissue of oral cavity.	2,5
26.	Tumors and tumor-like diseases of oral cavity. Congenital malformations of facial skull, jaws and organs of oral cavity.	2,5
27.	Infectious and parasitic diseases. Description of infectious process. Intestinal infectious diseases. Bacterial infections: diphtheria, meningococcal infection.	2,5
28.	Viral respiratory infections. Corona-virus disease (Covid-19). Rabies. Variola vera.	2,5
29.	Infectious diseases with multiorgans' lesions. Tuberculosis. HIV-infection. Sepsis. Odontogenic sepsis.	2,5
30.	Colloquim 4. Gross view changes and microscopical features of kidneys, genital organs, oral-facial system and organs of oral cavity, infectious diseases. Postmortem examination.	2,5
Total amount of hours in part 2		35
Total amount of hours in practical lessons in discipline		67

6. Student's self-reliant work

№	THEME	Amount of hours	Type of control
Part 1. General Pathomorphology			
1.	History of development of pathological anatomy and pathomorphology.	2	current control during practical lesson
2.	Ultrastructural pathology of cell. Cellular-matrix interactions. Adjustment of intracellular and extracellular mechanisms of metabolism.	2	current control during practical lesson
3.	Main pathogenetical mechanisms of hypoxic, free radical, chemical and biological cell injuries.	3	current control during practical lesson
4.	Mechanisms of disorganization of connective tissue and amyloidosis.	2	current control during practical lesson
5.	Mechanisms of pigments accumulation. Jaundice: definition, ethiological factors, mechanisms, classification. Calcification. Disorders of iron and copper metabolism.	2	current control during practical lesson
6.	Mechanisms of different types of edema.	2	current control during practical lesson
7.	Disorders of water-electrolytic metabolism.	4	current control during practical lesson
8.	Role of vascular wall, blood coagulation system in physiological hemostasis and thrombosis. Hypercoagulability states.	3	current control during practical lesson
9.	Basic pathogenetical mechanisms of shock and DIC-syndrome. Anaphilactic shock in dentist's practice: main ethiological factors, pathogenesis, consequences.	4	current control during practical lesson

10.	Defensive mechanisms and their morphological equivalents.	2	current control during practical lesson
11.	Macrophages and their role in chronic inflammation. Pathogenesis of granulomas.	2	current control during practical lesson
12.	Mechanisms of hypersensitivity reactions and autoimmune diseases. Immunological tolerance. Immunodeficiency states.	2	current control during practical lesson
13.	Mechanisms of wound healing and reparation of certain tissues.	2	current control during practical lesson
14.	Cancerogenesis, main steps. Cancerogenes. Tumor progression, tumor dissemination. Local and systemic influences of tumors.	3	current control during practical lesson
15.	Mesenchymal odontogenic tumors.	2	current control during practical lesson
16.	Morphological peculiarities of neuroectodermal tumors of CNS and peripheral NS	2	current control during practical lesson
17.	Morphology of tumors of certain locations.	2	current control during practical lesson
18.	Lesions of oral cavity organs in cases of hematopoietic tumors	2	current control during practical lesson
19.	Peculiarities of structure and vital diagnostics of odontogenic tumors	3	current control during practical lesson
Total in part 1		46	
Part 2. Special Pathomorphology with autopsy course			
20.	Autopsy report. Medical death certificate. Clinical-anatomical tasks.	3	current control during practical lesson
21.	Anemias. Hemorrhagic syndromes: vasopathies, thrombocytopenias, thrombocytopathies, coagulopathies.	3	current control during practical lesson
22.	Lesions of oral cavity organs in cases of autoimmune diseases.	2	current control during practical lesson
23.	Systemic vasculities.	2	current control during practical lesson
24.	Diseases of CNS.	3	current control during practical lesson
25.	Pneumoconioses. Bronchial asthma.	2	current control during practical lesson
26.	Malabsorption syndrome. Chron's disease. Ulcerative colitis. Pancreatitis. Cholecystitis. Cholangitis.	2	current control during practical lesson
27.	Lesions of oral cavity in a case of diabetes mellitus.	2	current control during practical lesson
28.	Nephrotic and nephritic syndromes. Acute and chronic renal insufficiency.	2	current control during practical lesson
29.	Diseases of male and female genital organs, complications of pregnancy and postpartal period.	3	current control during practical lesson
30.	Pre- and perinatal pathology.	2	current control during practical lesson
31.	Diseases of skeletal muscles, bones and joints.	2	current control during practical lesson
32.	Pathomorphology of diseases related to malnutrition. Professional diseases. Yatrogenic pathology.	2	current control during practical lesson
33.	Non-cariogenic diseases of hard dental tissues.	2	control during concluding lesson
34.	Diseases of jaws, salivary glands, tongue, soft tissues of the bottom of oral cavity in cases of various internal diseases.	2	current control during practical lesson
35.	Congenital abnormalities of facial-oral system.	3	current control during practical lesson
36.	Infectious and parasitic diseases. Description of infectious process. Odontogenic sepsis.	2	current control during practical lesson
37.	Pediatric infectious disease: measles, chickenpox, infectious (epidemic) parotitis, infectious mononucleosis.	2	current control during practical lesson

38.	Atypical mycobacterial infection.	14	2	current control during practical lesson
39.	Protozoal infectious diseases. Helmintoses. Micoses		2	current control during practical lesson
Total in part 2			45	
Total amount of hours of self-reliant work in discipline			91	

7. Individual Task

Is performed by students during content module 2 “Special pathomorphology with autopsy-biopsy course” and foresee preparing of autopsy report according to certain demands. Preparing of autopsy report is obligatory and is evaluated according to 4-points scale. Mark for autopsy report is taking into consideration in final exam in discipline “Pathomorphology with autopsy-biopsy course.

8. Methods of educational process

According to educational plan main types of educational student’s activities are represented by following: a) lectures; b) practical lessons; c) self-reliant work of students.

Topics of lecture course are related to most problematic questions of certain chapters of pathomorphology.

Practical lessons provide: 1) examination of macroscopical changes of injured isolated organs and systems in cases of general pathological processes and diseases of organs and systems; 2) examination of histological changes of injured isolated organs and systems in cases of general pathological processes and diseases of organs and systems;

3) solving of situational tasks (revealing of morphological changes in cases of various pathological processes) with significant clinical-anatomical directions.

During practical lesson students draw in and describe microscopical changes of investigated tissue or cells in cases of various pathological processes.

Current educational student’s activity is controlled during practical training according to concrete aims of study and during individual work of supervisor with students.

9. Methods of control

Types of control (current, final):

- **current** (is carried out on every practical lesson)
- type of **final** control according to curriculum:
- part 1 «**General Pathomorphology**» – **credit**;
- part 2 «**Special Pathomorphology with autopsy course**» - **credit and exam**.

10. Current control

The routine control is carried out on every practical class according to the concrete aims of theme, during individual work of teacher with a student for those themes, which a student works over independently and they do not enter to the structure of practical class. It is recommended to apply such facilities of diagnostics of level of preparation of students: computers tests; answer of situation tasks; structured writing works; control of practical skills and abilities structured on procedure (estimation of knowledge and abilities to analyze and interpret macro- and microscopic changes of cells, tissues, organs and systems at those or other pathological processes).

Evaluation of current educational activity: in evaluation the mastering of each theme for current educational activity the student’s score for the 4-point (traditional) scale taking into account the approved evaluation criteria.

Excellent (“5”) – a student correctly answered the format A for 90-100%. Right, clearly, logically and completely answers all questions standardized current theme, knows material of previous topics (background knowledge), answers all question from lectures and the question of self-work; complete in proper way all tasks, schemes, tables from the Lab-Guide; absolutely correctly demonstrate practical skills (describe typical macroscopical changes on gross-view examples and correctly interpret morphological changes in histological slide); makes synthesis, complements its answer of additional knowledge of specialized literature.

Good (“4”) – a student answered correctly by 70-89% of format A test. Right, sometimes with the help of explanatory questions, answers standardized questions of the current theme, knows material of previous topics (background knowledge), answers the question from lectures and the question of self work; complete with some small mistakes all tasks, schemes, tables from the current theme of Lab-Guide; correctly demonstrate practical skills (describe typical macroscopical changes on gross-view examples and correctly interpret morphological changes in histological slide); completed all tasks provided methodological developments during self-work.

Satisfactory (“3”) – a student answered correctly by 50-69% of format A test. Incomplete, using explanatory questions, answers standardized questions of the current theme and of previous topics (background knowledge), inaccurate and incomplete answers lecture’s question and the question of self-work; incompletely, with some minor errors, fill in tasks, schemes, tables from the current theme of Lab-Guide; could not give a clear, logical answer by itself; demonstrate practical skills with multiple minor mistakes.

Unsatisfactory (“2”) – a student answered correctly only for less than 50% of format A test. Don’t know the material of current topic. Either answer the questions of the current theme incomplete, cannot build a logical answer, did not respond to further questions, do not understand the content of material, do not know questions of previous lessons (background knowledge); totally don’t complete tasks, schemes, tables from the current theme of Lab-Guide; could not give a clear, logical answer by itself; couldn’t demonstrate any proper practical skills (couldn’t make a proper decision about gross-view sample and certain histological slides).

Evaluation of self student work: the material for student self work are represented by certain parts of Lab-Guides in a form of different pictures, schemes, tables, questions, description of histological slides. Evaluation of topics submitted to self study is done according to special amounts of points which should be included into the total mark of current practical training.

11. Formes of final control of learning success

In IV semester, in *part 1 “General Pathomorphology”*, form of final control is a *credit*.

In V semester, in *part 2 “Special Pathomorphology with autopsy course”*, form of final control is an *exam* which includes materials from all themes studied by students during two semesters.

12. Scheme of points calculating

In IV semester, in *part 1 “General Pathomorphology”*, form of final control is a *credit*.

The maximum number of points that student can receive for current educational activity per semester is 200 points. The minimum number of points that student can receive for current educational activity per semester is 120 points. Calculating of the number of points is based on student evaluations received by traditional 4-points scale by calculating of the arithmetic average point (AA), rounded to two decimal places. The results are converted into points by multiscale as follows:

$$x = \frac{AA \times 200}{5}$$

Table 1. Conversion of an average score for current activity in multipoint 200-scale

4-point scale	200-point scale	4-point scale	200-point scale	4-point scale	200-point scale	4-point scale	200-point scale
5	200	4.45	178	3.92	157	3.37	135
4.97	199	4.42	177	3.89	156	3.35	134
4.95	198	4.4	176	3.87	155	3.32	133
4.92	197	4.37	175	3.84	154	3.3	132
4.9	196	4.35	174	3.82	153	3.27	131
4.87	195	4.32	173	3.79	152	3.25	130
4.85	194	4.3	172	3.77	151	3.22	129
4.82	193	4.27	171	3.74	150	3.2	128
4.8	192	4.24	170	3.72	149	3.17	127
4.77	191	4.22	169	3.7	148	3.15	126
4.75	190	4.19	168	3.67	147	3.12	125
4.72	189	4.17	167	3.65	146	3.1	124
4.7	188	4.14	166	3.62	145	3.07	123
4.67	187	4.12	165	3.57	143	3.02	121
4.65	186	4.09	164	3.55	142	3	120
4.62	185	4.07	163	3.52	141	less than 3	insufficient
4.6	184	4.04	162	3.5	140		
4.57	183	4.02	161	3.47	139		
4.52	181	3.99	160	3.45	138		
4.5	180	3.97	159	3.42	137		
4.47	179	3.94	158	3.4	136		

In the V semester form of final control is an *exam* which includes materials from all themes studied by students during two semesters.

The maximum number of points that student can receive for current educational activity per semester is 120 points. The minimum number of points that student can receive for current educational activity per semester is 72 points. Calculating of the number of points is based on student evaluations received by traditional 4-points scale by calculating of the arithmetic average point (AA), rounded to two decimal places.

The results are converted into points by multi-scale as follows:

$$x = \frac{AA \times 120}{5}$$

Table 2. Conversion of an average score for current activity in multipoint 200-scale

4-point scale	200-point scale	4-point scale	200-point scale	4-point scale	200-point scale	4-point scale	200-point scale
5	120	4.45	107	3.91	94	3.33	80
4.95	119	4.41	106	3.87	93	3.29	79
4.91	118	4.37	105	3.83	92	3.25	78
4.87	117	4.33	104	3.79	91	3.2	77
4.83	116	4.29	103	3.74	90	3.16	76
4.79	115	4.25	102	3.7	89	3.12	75
4.75	114	4.2	101	3.62	87	3.08	74

4.7	113	4.16	100	16	3.58	86	3.04	73
4.66	112	4.12	99		3.54	85	3	72
4.62	111	4.08	98		3.49	84	less than 3	insufficient
4.58	110	4.04	97		3.45	83		
4.54	109	3.99	96		3.41	82		
4.5	108	3.95	95		3.37	81		

Maximum of points in exam – is 80. Minimum of points in exam – is 50.

Evaluation of amount of points which student received in educational subject

The mark in discipline “Pathomorphology with autopsy-biopsy course” is represented by a sum of points for current educational activity (not less than 72) and points for exam (not less than 50).

Points in educational discipline for students which successfully completed a program have been transformed into traditional 4-point scale according to absolute criteria represented within the following table:

Points for a discipline	Mark according to traditional 4-point scale
From 170 to 200	“5”
From 140 to 169	“4”
From 139 to 120	“3”
Less than 120	“2”

Objectivity of evaluation of educational activity of students must be checked up by statistical methods (coefficient of correlation between routine progress and results of final module control).

Converting of amount of marks from discipline in to mark on the scales of ECTS and 4-ball (traditional): the amount of marks from discipline which is give to the students is converted in the scale of *ECTS* in following way:

Mark of ECTS	Statistical index
A	The best 10% students
B	Next 25% students
C	Next 30% students
D	Next 25% students
E	Last 10% students

13. Methodical providing (educational content)

1. Educational program of discipline;
2. Thematical plans of lectures, practical lessons, self-reliant study;
3. Theses of lectures in educational discipline;
4. Methodical recommendations for teachers;
5. Methodical recommendations for practical lessons for students;
6. Methodical materials (guides) for student’s self work;
7. Tests and control tasks for practical lessons;
8. Questions and tasks for concluding control;
9. List of questions for final exam, list of tasks for evaluation of student’s practical skills during final exam.

13.1 List of questions for preparation to final exam in discipline “Pathomorphology with autopsy course”

Part I. General pathomorphology

Pathomorphology as science, part of practical medicine and educational object.

Contents, aims, objects and methods of pathomorphologic researches.

Levels of diseases structural bases researches. Basic stages of pathomorphology development.

Payment of works of G.Morgagni, C. Rokitansky, R.Virchow in development of world pathomorphology. Concept about ultrastructural pathology of cell.

Morphogenesis and morphology of intra- and extracellular accumulation of proteins, carbohydrates and lipids.

Morphogenesis and morphology of pathological accumulation of endogenous and exogenous pigments Morphogenesis and morphology of minerals metabolism disorders.

Injury and necrosis of cells and tissues. Necrosis and apoptosis are morphologic manifestation.

Pathomorphology of organ insufficiency. Bases of tanatology. Death, definition, signs of death, postmortem changes.

Structural mechanisms and clinical-pathoanatomical characteristics of basic periods of tanatogenesis. Death: definition, signs and term of development.

Postreanimation period: definition, pathoanatomical features of damage of vitally-important organs and renewal of their functions.

Disorganization of connective tissue. Types, morphological manifestations, consequences. Principles of amyloidosis classification.

Systemic amyloidosis (primary, secondary): morphological description. System amyloidosis (primary, secondary): morphological description. Local and endocrine amyloidosis: morphological description.

Amyloid of old age: morphological description.

Morphology of osmotic and water balance disturbances.

Morphology and consequences of different types of hyperemias.

Morphogenesis and pathomorphology of ischemia.

Morphogenesis and pathomorphology of infarction.

Determination and morphogenesis of bleeding, hemorrhage different types.

Morphogenesis, pathomorphology and complications of stasis.

Pathomorphology and complications of plasmorrhagia.

Pathomorphology, types and complications of embolism.

Morphogenesis, pathomorphology and complications of shock. Pathomorphology and complications of lymph circulation disturbance.

Morphogenesis, pathomorphology and complications of thrombosis, DIC-syndrome.

Defence mechanisms, their morphological equivalents. Definition of exudative inflammation.

Types, morphological description clinical value of exudate inflammation.

Definition of proliferative inflammation. Morphological features and complications of proliferative inflammation.

Types, morphological description of granulomatous inflammation. Types, morphological description of specific inflammation.

Morphological description of different types of hypersensitiveness.

Definition, classification and general morphological description of autoimmune diseases.

Definition, general morphological description of primary and secondary immune insufficiency.

Hyperplasia: definitions, types, morphological description.

Atrophy: definitions, types, morphological description.

Metaplasia: definitions, types, morphological description.

Hypertrophy: definitions, appearances, morphological description.

Morpho-functional features of hypertrophy of myocardium. Pathology of disadaptation of organism.

Cellular and intracellular forms of regeneration.

Types of regeneration: physiology, reparative, pathological.

Morphogenesis of regenerate process.

Granulation tissue: morphological description. Types of wounds healing.

Sclerosis.

Tumors: definition, the nomenclature, principles of the classification. Modern theories of the neoplasia's development.

Dysplasia: definition, types, role of dysplasia in cancerogenesis. Pre-cancerous processes and changes, morphology.

Tumor's cytomorphology (differentiation and anaplasia).

Morphogenesis and histogenesis of tumors.

The characteristic of tumorous growth: mechanisms, types.

Morphological features of benign tumors.

Morphological features of malignant tumors.

Metastases: definition, mechanisms, types of spreading, Peculiarities of cancer's dissemination. Systemic nonmetastatic clinical – morphological manifestation of tumors.

General characteristic and modern histogenetic classification of mesenchymal tumors. Morphological peculiarities of benign mesenchymal tumors.

Morphological peculiarities of malignant mesenchymal tumor.

Peculiarities of metastasizing of sarcomas.

Nomenclature of Tumors of nervous tissue.

Clinical-morphological peculiarities of tumors of the central nervous system (CNS).

Peculiarities of metastasizing of tumors of the central nervous system (CNS).

Clinical-morphological peculiarities of tumors of the vegetative nervous system. Clinical-morphological peculiarities of tumors of the peripheral nervous system.

Nomenclature of tumors which derived from melanin-producing tissue. Nevus, its types.

Morphological features of melanoma, its morphological forms. Importance of pre-tumorous changes. Modern histogenetic classification and nomenclature of the epithelial tumors.

Morphological peculiarities of epithelial tumors without specific localization: benign (adenoma, papilloma) and malignant (carcinoma).

Histological variants of carcinomas Peculiarities of metastasizing process.

Peculiarities of the growth and spreading of carcinomas.

Dysontogenetic tumors: gamartoma, and gamartoblastoma- morphological features. Teratomas and teratoblastomas - morphological features.

Tumors derived from cambial embryonic tissues. Tumors of childhood, which develops as the tumors of adults - morphological features.

Definition, classification, general morphological features of leukemias.

Acute leukemia: types, stages in course of diseases, morphologic description. Chronic leukemia: types, stages in

course of diseases, morphologic description. Hodgkin's disease: histological types, morphological description, causes of death.

Non-Hodgkin's Lymphomas: common description, morphological features and prognosis. Tumors of the organs and tissues of the oral cavity.

Peculiarities of course and metastatic spreading.

Cysts of jaws: classification, main types, morphological peculiarities, clinical significance.

Part 2. Special pathomorphology with autopsy course

Organization of Pathology service, its place in the system of Health Care, main tasks. Main documents used in pathology practice, rules of filling in.

Types of biopsies. Peculiarities of their using in dental practice. Definition, classification and morphological features of anemias.

Definition, classification, morphological features of thrombocytopenia and thrombocytopathy. Classification, morphological description of coagulopathies.

Definition of atherosclerosis, risk factors, modern theories. Morphogenesis of macroscopical changes in atherosclerosis. Morphogenesis of microscopical changes in atherosclerosis.

Clinical-morphological types of atherosclerosis, morphological description of injured organs.

Ischemic heart disease: definition, risk-factors and connection with atherosclerosis and hypertensive disease.

Morphology of acute, relapsed and repeated heart attack of myocardium.

Outcomes, complications and causes of death in myocardial infarction.

Morphological description, complications, causes of death in chronic ischemic heart disease. Hypertensive disease: definition, factors of risk.

Morphological changes in vessels, heart and other organs in hypertensive disease. Secondary (symptomatic) hypertension: definition, classification.

Common description of systemic diseases of connective tissues: disturbance of immune homeostasis and systemic progressive disorganization of connective tissue.

Rheumatic Fever: etiology, criteria of rheumatic fever. Clinical-anatomical forms.

Morphology of heart damage in Rheumatic Fever (endocarditis, myocarditis, pericarditis): classifications, clinical-morphological description, complications.

Rheumatoid Arthritis: etiology, morphogenesis, clinical - morphological stages and their morphological appearance. Outcomes and complications.

Morphology of Bechterew's disease

Systemic Lupus Erythematosus: etiology, morphological features, complications and causes of death. Morphological appearance, complications and causes of death in scleroderma.

Dermatomyositis: morphological appearance, complications and causes of death.

Systemic vasculitis: nonspecific arteritis, polyarteritis nodosa, obliterated thrombangitis, Wegener's granulomatosis. Description and pathomorphology. Löfller's endocarditis: determination, pathogenesis, pathomorphology.

Pathomorphology of acquired heart defects. Pathomorphology of acquired (secondary) cardiomyopathies.

Cerebral-vascular diseases: common description, risk factors and background states, classification. Infarction (ischemic stroke) of brain: morphological appearance.

Morphogeny and morphological appearance of selective necrosis of neurons (ischemic encephalopathy).

Morphological appearance, consequences of hemorrhagic infarction.

Morphological appearance, complications of spontaneous intracerebral hemorrhage. Morphological appearance, complications of spontaneous subarachnoid hemorrhage. Alzheimer's disease: morphological appearance, complications.

Disseminated sclerosis:, morphological appearance, complications. Lateral amyotrophic sclerosis: morphological appearance, complications.

Postreanimation's encephalopathy: morphological appearance, complications. Morphological appearance, complications of diseases of peripheral nervous system. Acute bronchitis: morphological characteristics.

Modern classification of pneumonias.

Lobar pneumonia: morphological appearance and complications.

Acute bronchopneumonias: morphological manifestations and complications. Acute interstitial pneumonia:

morphological manifestations and complications. Morphological manifestations of acute destructive processes of lungs.

Determination of chronic nonspecific diseases of lungs.

Chronic bronchitis: morphological manifestations and complications.

Chronic obstructive emphysema: morphological manifestations.

Bronchiectasis: morphological manifestations and complications.

Bronchial asthma: morphological manifestations and complications. Morphological manifestations of chronic diffuse interstitial diseases:

Idiopathic pulmonary fibrosis: morphological manifestations.

Carcinoma of lungs: morphological manifestations.

Diseases of esophages: morphological manifestations.

Morphological manifestations of chronic gastritis.

Pathomorphology of peptic ulcer. Complications of peptic ulcer.

Gastric carcinoma: macroscopical and morphological types. Peculiarities of cancer's spread.

Pathomorphology of nonspecific ulcerative colitis.

Pathomorphology of Crohn's disease.

Appendicitis: clinical-morphological forms. Complications of appendicitis.

Intestinal Neoplasms

Hepatitis: morphological manifestations and prognosis.

Toxic degeneration (massive necrosis) of liver: definition, morphological features and prognosis.

Acute hepatitis: morphogenesis, their classification and morphological features.

Chronic hepatitis: morphological description, degree of activity and chronicity. Morphological characteristic of the most important types of cirrhosis.

Carcinoma of liver, morphological characteristic. Pathomorphology of cholelithiasis.

Pathomorphology of acute and chronic cholecystitis.

Morphological characteristic, complications of acute and chronic cholecystitis.

Tumors of pancreas, morphological characteristic.

Itsenko-Cushing's disease: Morphological characteristic, complications and causes of death. Morphological characteristic and complications of acromegaly.

Morphological characteristic of diabetes insipidus.

Morphological characteristic of diabetes mellitus.

Complications of diabetes mellitus. Morphological features of diabetic macro- and microangiopathy.

Multinodular Goiter: Morphological characteristic, complications, outcomes.

Graves' disease (or diffuse toxic goiter, Basedow's disease): morphologic features of thyroid gland, visceral appearance.

Hypothyroidism. Cretinism. Mixedema. Morphological description. Hashimoto's thyroiditis: definition, pathomorphology.

Primary and secondary hyperparathyroidism: morphological peculiarities.

Primary chronic adrenocortical insufficiency (Addison's disease): morphological appearance.

Morphological characteristic, outcomes of inflammatory diseases and precarcinomatous processes of cervix uteri.

Morphological manifestations of inflammatory diseases of endometrium and myometrium.

Morphological manifestations of precarcinomatous processes and tumors of endometrium and myometrium.

Morphological characteristic, complications, outcomes of inflammatory diseases of the breast.

Morphological characteristic of fibrocystic changes of the breast.

Benign prostatic hyperplasia (Nodular hyperplasia): Morphological characteristic, complications, outcomes.

Morphological characteristic of inflammatory diseases of testicles.

Modern clinico-morphological classification of kidney's diseases.

Acute poststreptococcal glomerulonephritis: morphological features, outcomes.

Rapidly progressive (crescent) glomerulonephritis: morphological characteristic, outcomes.

Chronic glomerulonephritis: morphological characteristic, outcomes.

Classification, morphological appearance of nephrotic syndrome. Morphological manifestations of idiopathic membranous nephropathy. Morphological features of focal sclerosis.

Acute tubular necrosis: Morphological characteristic, prognosis. Interstitial nephritis: morphological characteristic, prognosis.

Acute and chronic pyelonephritis: morphological characteristic, prognosis. Nephrolithiasis: morphogenesis and morphological characteristic, outcomes. Chronic renal failure. Nephrosclerosis. Pathomorphology.

Hyperparathyroidism: morphological changes of bones. Paget's disease: morphological description, complications.

Fibrous dysplasia: morphological characteristic, complications.

Ectopic pregnancy: classification, morphological diagnostics, complications and consequences. Eclampsia of pregnancy: classification, morphological description.

Trophoblastic disease. Classification. Morphological description, prognosis.

Morphological appearances, influence on a fetus and organism of woman, consequences of infectious processes in a placenta. Morphological manifestations of disturbance of blood circulation in a placenta.

Morphological characteristic, prognosis of Intrauterine growth retardation of newborn Birth injury: classification, morphological description.

Morphological characteristic of hemolytic diseases of newborns. Morphological characteristic of hemorrhagic diseases of newborns.

Diseases of lungs of perinatal period (pneumopathies): morphological manifestations, complications. Morphological characteristic and outcomes of asphyxia.

Infectious fetopathies: morphological manifestations.

Non-infectious fetopathies (diabetic and alcoholic fetopathies): morphological characteristic and outcomes.

Classification and morphology of congenital defects of development.

Morphological characteristic disturbed and undernutrition. Morphogenesis and morphological characteristic of pneumoconiosis.

Damages which are related to the changes of atmospheric pressure: pathomorphology, consequences, cause of death.

Diseases due to influencing of industrial noise (noise disease): pathomorphology, consequences and causes of death.

Diseases due to influencing of electromagnetic radiation: pathomorphology, outcomes, causes of death. Damages from the temperature influencing: pathomorphology, consequences and causes of death.

Damages which are caused by an electric current: pathomorphology, consequences and causes of death. Diseases as a

result of influencing of ionizing radiations: pathomorphology, consequences and causes of death.
 Pathomorphology of caries. Clinical-morphological stages of caries Noncarious lesions of hard tooth tissues.
 Clinical-morphological manifestations of pathological conditions of dental pulp and periapical tooth tissue. Clinical-morphological manifestations of reactive changes of dental pulp.
 Clinical-morphological manifestations of acute and chronic pulpitis.
 Periodontitis. Morphogenesis and morphological manifestations of parodontitis.
 Pathomorphology of gingivitis. Morphological types of gingivitis.
 Dental deposits. Pathomorphology of parodontitis.
 Parodontosis: morphogenesis and morphological features. Idiopathic progressing parodontitis.
 Inflammatory diseases of jaws: morphogenetic appearance, complications and outcomes. Cysts of the jaws.
 Diseases of the salivary glands: sialoadenitis, sialolithiasis, salivary cysts. Diseases of the lips, tongue, soft tissue of oral cavity: cheilitis, glossitis, stomatitis. Parodontomes
 Tumor-like diseases of the jaws.
 Nonodontogenic and odontogenic tumors of the jaws.
 Tumors and tumor-like diseases of salivary glands.
 Tumors and tumor-like diseases of lips, tongue and soft tissue of oral cavity.
 General description of infectious process: portal of entry of infection, primary infectious complex, spreading and dissemination, ways of transmission of infectious diseases.
 Morphological variants of local and general reactions in infections.
 Shigella bacillary dysentery: morphological description, complications, consequences, causes of death. Typhoid fever: morphological description, complications, consequences, causes of death.
 Salmonellosis: morphological description, complications, consequences, causes of death. Yersiniosis: morphological description, complications, consequences, causes of death.
 Acute respiratory viral diseases: morphological description, complications, consequences, causes of death.
 Typhoid fever: morphological description, complications, consequences, causes of death.
 Infectious diseases of the brain (tick-borne viral encephalitis): morphological description, complications.
 Morphological characteristic, complications in prion's diseases of CNS.
 Morphological characteristic, complications, causes of death in AIDS.
 Measles: morphological description, complications, consequences, causes of death.
 Infectious mononucleosis: morphological description, complications, consequences, causes of death. Mumps (epidemic parotitis): morphological description, complications, consequences, causes of death. Diphtheria: morphological description, complications, consequences, causes of death.
 Scarlet fever: morphological description, complications, consequences, causes of death.
 "Whooping cough": morphological description, complications, consequences, causes of death. Poliomyelitis: morphological description, complications, consequences, causes of death.
 Morphology of tissues reactions in tuberculosis.
 Pathomorphology of the primary tuberculous complex.
 Progress of primary tuberculosis with generalization: morphological description. Pathomorphology of chronic course of primary tuberculosis.
 Hematogenous pulmonary tuberculosis: morphological description, complications, consequences, causes of death.
 Hematogenous tuberculosis with extrapulmonary lesions or organic tuberculosis: morphological description, complications, consequences, causes of death.
 Secondary tuberculosis: morphological description, complications, consequences, causes of death. Modern pathomorphology of tuberculosis.
 Clinical-morphological forms of sepsis: septicemia, septicopyemia, septic endocarditis. Plague: clinical-morphological forms, complications, causes of death.
 Rabbit-fever: clinical-morphological forms, causes of death. Anthrax: clinical-morphological forms, causes of death.
 Cholera: clinical-morphological forms, complications, causes of death.
 Morphological description of congenital syphilis.
 Morphological description of acquired syphilis.
 Malaria: morphological characteristic, complications, outcomes, causes of death.
 Morphological description of balantidiasis.
 Morphological description of amebiasis.
 Morphological description of trichinellosis.
 Morphological description of echinococcosis.
 Morphological description of cysticercosis.
 Morphological description of opisthorchiasis.
 Morphological description of schistosomiasis.
 Morphological description of dermatomycosis.
 Morphological description of actinomycosis.
 Morphological description of candidiasis.
 Morphological description of aspergillosis.

14. List of Educational Materials

1. Robbins&Cotran Pathologic Basis of Disease (Robbins Pathology) 10th Edition by V.Kumar, A.K.Abbas, J.C.Aster.

- Canada: Elsevier Health Sciences, 2020 – 1392 p.
2. Robbins Basic Pathology (Robbins Pathology) 10th Edition by V.Kumar, A.K.Abbas, J.C.Aster. – Canada: Elsevier Health Sciences, 2017 – 952 p.
 3. Diagnostic Pathology: Cytopathology 2nd Edition by D.M.Michael, J.Thrall, S.Krishnamuthy. – Elsevier Health Sciences, 2018 – 850 p.
 4. Sternberg’s Diagnostic Surgical pathology [2-Volume Set] 7th Edition by S.E.Mills, J.K.Greenon, J.L.Hornick, T.A.Longacre, V.E.Reuter. – Lippincott Williams and Wilkins, 2022.
 5. Pathology: Implications for the Physical Therapist 5th Edition by C.C.Goodman, K.S.Fuller. – Elsevier Health Sciences, 2020 – 1800 p.
 6. Comprehensive Radiographic Pathology 7th Edition by R.L.Eisenberg, N.M.Johnson. – Elsevier Health Sciences, 2020 – 480 p.
 7. BRS Pathology 6th Edition by M.E.Peyton Gupta. – Wolters Kluwer Health, 2020. – 496 p.
 8. Molecular Pathology 2nd Edition: The Molecular Basis of Human Diseases by W.Coleman, G.Tsongalis. – Academic Press, 2017. – 802 p.
 9. Oral and Maxillofacial Pathology: a Rationale for Diagnosis and Treatment 2nd Edition by Robert E.Marx, Diane Stern. – Quintessence Publishing, 2012. – 1017.

15. Informational Resources

- <http://library.med.utah.edu/WebPath/webpath.html>
- <http://www.webpathology.com/>
- <https://www.geisingermedicallabs.com/lab/resources.shtml>
- <https://www.pathologyoutlines.com/>