

Federal State Autonomous Educational Institution of Higher Education
«Peoples' Friendship University of Russia»

Medical Institute

Recommended MCSD

SYLLABUS
(STUDY GUIDE)

Subject

Pathologic Anatomy, Clinical Pathologic Anatomy

Recommended for the direction of training (specialty)

31.05.01 General Medicine

Program (profile, specialization)

General Medicine

1. Aims and objectives of the discipline:

The aim of the discipline:

receiving the knowledge by students about the structural basis of disease, the study of the most typical characteristic changes in the macroscopic and microscopic levels of comprehension of the theoretical foundations of medicine, more in-depth study of the clinic and use the gained knowledge in general practice.

Objectives of the discipline:

- study of morphological changes of molecular, cellular, tissue, organ, system and intersystem typical pathological processes;
- study of the morphology and development of disease-specific outcomes, developing in individual organs and systems;
- analysis of the nature of the clinical manifestations of the basic pathological processes;
- acquainted with the principles of lifetime and postmortem diagnosis of disease in individual organs and systems.

2. Place of discipline in the structure of OP HE.

The discipline Pathologic anatomy, clinical pathologic anatomy refers to the basic part (B.13) of mathematical and natural-science disciplines cycle (C.2) of the curriculum.

Table №1 gives preceding and following discipline aimed at forming competence discipline in accordance with the matrix competences OP HE.

Table 1.
Preceding and following discipline aimed at creating competencies

№	Code and title of competence	Preceding disciplines	Following disciplines
General Professional Competences			
1	GPC-5	Anatomy; Topographic anatomy and operative surgery; Histology, embryology, cytology; Normal physiology	Epidemiology; Neurology, Medical Genetics and Neurosurgery; Otorhinolaryngology; Hospital therapy; Endocrinology; Infectious diseases; Phthisiology; Outpatient therapy; Obstetrics and gynecology; Pediatrics; Sectional course; Evidence-based medicine; Endoscopic urology.

3. Requirements to results of development of the discipline:

The process of studying the discipline is aimed at the formation of the following competencies:

Table 2

Formed competencies

Competencies	Name of competence	Competence achievement indicators

GPC-5	Being able to assess morpho-functional, physiological conditions and pathological processes in the human body to solve professional tasks	GPC-5.2. Being able to evaluate the results of clinical, laboratory and functional diagnosis when dealing with professional tasks. GPC-5.3. Being able to determine morpho-functional, physiological states and pathological processes of the human body.
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As a result of study of discipline a student must:

Know:

- structure, topography and development of cells, tissues, organs and systems in cooperation with their function in health and disease, especially organismal, population levels of organization of life;
- the concepts of etiology, pathogenesis, morphogenesis disease nosology, the principles of classification of diseases basic concepts of general nosology;
- structural and functional basis of diseases and pathological processes, the reasons, the main mechanisms of development and outcomes of typical pathological processes, disorders of the organs and systems;

Be handy at:

- to be able to describe the morphological changes in various diseases at the macroscopic and microscopic level;
- visually assess and record changes in organs and tissues of the corpse, to justify the nature of the pathological process and its clinical manifestations;
- give an opinion on the cause of death and to formulate anatomopathological diagnosis;
- justify the principles of lifetime and postmortem diagnosis of disease in individual organs and systems;
- analyze questions of general pathology and modern theoretical concepts and trends in medicine.

Manage:

- skill comparison of morphological and clinical manifestations of the disease;
- methods of clinical and anatomical analysis of the biopsy and surgical specimens;

4. Volume of discipline and kinds of study

Total labor of the discipline is **7 credit units**.

Type of study load	Total hours	Semesters	
		5	6
Class hours (total)	175	90	85
Include:			
Lectures	35	18	17
Laboratory research (LR)	140	72	68
Independent work (total)	113	54	59
Include:			
Esseys	20	10	10
Total labor input (hours)	252	144	108
<i>Credit Unit</i>	7	4	3

5. Content of the discipline

5.1. The content of the discipline sections

№ п/п	Name of the section of the discipline	Contents of the section
1	Pathologic anatomy of cells and tissues	Necrosis. Apoptosis. Intracellular accumulation: hyaline changes. Amyloidosis. Pathologic calcification (calcifications). Disorders of the metabolism of pigments (chromoproteins). Pigmentation disorders.
2.	Pathologic anatomy of blood and lymph circulation disorders.	Disruption of water and electrolyte balance. Circulatory disorders: Shock. Hemostasis. Thrombosis. Ischemia. Infarction.
3.	Pathologic anatomy of inflammation, healing and tissue repair.	Acute inflammation. Chronic inflammation.
4.	Pathologic anatomy of the immune system.	Pathological conditions of the immune system. Hypersensitivity reactions. Transplant rejection. Autoimmunity and autoimmune disease. Immune deficiency syndromes.
5.	Pathologic anatomy of compensatory and adaptive processes.	Atrophy. Hypertrophy. Hyperplasia. Regeneration. Types of tissue healing.
6.	Pathologic anatomy of tumors.	Epithelial tumors. Mesenchymal neoplasms. Tumors of the bronchi and lungs. Tumors of the nervous system. Melanocytic tumors. Benign epithelial tumors and malignant tumors of the epidermis. Tumors of the mammary glands. Tumors that develop from the vessels. Diseases of the cervix. Diseases of the uterus and endometrium. Diseases of the ovaries. Ovarian cysts.
7.	Pathologic anatomy of blood cells and bone marrow.	Hematopoietic tissue tumors (leukemia). Hodgkin's disease (Hodgkin's disease), non-Hodgkin's lymphoma. Anemia.
8.	Pathologic anatomy of diseases of the cardiovascular system.	Atherosclerosis and arteriosclerosis. Hypertension and arteriolosclerosis. Cerebrovascular disease. Infarction (ischemic stroke) in the brain. Coronary heart disease (coronary heart disease). Hypertensive (hypertensive) heart disease. Diseases of the heart valves and holes and main arteries. Congenital heart defects.
9.	Pathologic anatomy of the urinary system diseases.	Glomerular kidney disease. Acute glomerulonephritis. Nephrotic syndrome. Chronic glomerulonephritis. Renal amyloidosis.
10.	Pathologic anatomy of diseases of the digestive system.	Hepatitis, alcoholic liver disease. Cirrhosis of the liver. Diseases of the stomach. Peptic ulcer disease. Diseases of the appendix.
11.	Pathologic anatomy of infectious diseases of bacterial and mycotic nature.	General characteristics of infectious diseases. Typhoid and typhus fever. Diphtheria. Scarlet fever. Bacillary dysentery. Acute and chronic bronchitis, bronchiolitis. Bronchiectasis congenital and acquired. Bronchopneumonia. Lobar pneumonia. Epidemiology, etiology, patho- and morphogenesis of tuberculosis. Classification of tuberculosis. Morphological characteristics, clinical manifestations,

		complications, outcomes, causes of death in tuberculosis. Acquired syphilis (primary, secondary, tertiary). Morphology of congenital syphilis. Etiology, patho- and morphogenesis, clinical and morphological characteristics of the three forms of leprosy. Classification and general characteristics of fungal infections.
12.	Pathologic anatomy of infectious diseases of viral nature.	Influenza. Measles.
13.	Pathologic anatomy of parasitic diseases.	Malaria. Morphological features of falciparum malaria. Amebiasis. Trypanosomiasis. Leishmaniasis. Schistosomiasis (bilharzia). Echinococcosis.
14.	Pathologic anatomy of quarantine infections and sepsis.	Plague, clinical and anatomical forms. Smallpox natural, pathological anatomy. Cholera. Three periods of the disease. Anthrax. Clinical forms depending on the pathways and clinical manifestations of infection. Systemic inflammatory response syndrome. Sepsis. Syndrome of multiple organ failure.

5.2. Sections of the discipline and types of classes.

№ п/п	Name of the discipline's section	Lectures	Practical exercises and laboratory work			SS	Total
			PE	LR			
1.	Pathological anatomy of cells and tissues.	4		16		16	36
2.	Pathological anatomy of blood and lymph circulation disorders.	1		8		8	17
3.	Pathological anatomy of inflammation, healing and tissue repair.	2		8		8	18
4.	Pathological anatomy of the immune system.	1		4		4	9
5.	Pathological anatomy of compensatory and adaptive processes.	2		4		4	10
6.	Pathological anatomy of tumors.	2		8		8	18
7.	Pathological anatomy of blood cells and bone marrow.	2		10		6	18
8.	Pathological anatomy of diseases of the cardiovascular system.	4		16		16	36
9.	Pathological anatomy of the urinary system diseases.	2		6		2	10
10.	Pathological anatomy of diseases of the digestive system.	2		10		6	18

11.	Pathological anatomy of infectious diseases of bacterial and mycotic nature.	6	24	24	54
12.	Pathological anatomy of infectious diseases of viral nature.	2	6	2	10
13.	Pathological anatomy of parasitic diseases.	2	10	6	18
14.	Pathological anatomy of quarantine infections and sepsis.	2	10	6	18
TOTAL:		32	140	113	288

6. Laboratory training

№ п/п	№ discipline section	Subject of laboratory training	Workload (hours)
1.	Section 1. Pathological anatomy of cells and tissues.	<ol style="list-style-type: none"> 1. Introductory lesson. Autopsy. 2. Reversible cell damage. Pathology of protein metabolism. 3. Pathology fat and mineral metabolism. 4. Violation of exchange pigments. 5. Irreversible cell damage. Necrosis. Apoptosis. 	16
2.	Section 2. Pathological anatomy of blood and lymph circulation disorders.	<ol style="list-style-type: none"> 1. Circulatory disorders. 2. Thrombosis. Embolism. 	8
3.	Section 3. Pathological anatomy of inflammation, healing and tissue repair.	<ol style="list-style-type: none"> 1. Exudative inflammation. 2. Productive inflammation. 	8
4.	Section 4. Pathological anatomy of the immune system.	<ol style="list-style-type: none"> 1. Immune organ damage. 	4
5.	Section 5. Pathological anatomy of compensatory and adaptive processes.	<ol style="list-style-type: none"> 1. Atrophy. 2. Hypertrophy. 3. Regeneration. 4. Types of tissue healing. 	4
6.	Section 6. Pathological anatomy of tumors.	<ol style="list-style-type: none"> 1. Tumors of the epithelium. 2. Particular forms of cancer. 3. Tumors of mesenchymal and mesodermal origin. 	8
7.	Section 7. Pathological anatomy of blood cells and bone marrow.	<ol style="list-style-type: none"> 1. Hemoblastosis. 2. Anemia. 	8
8.	Section 8. Pathological anatomy of diseases of the cardiovascular system.	<ol style="list-style-type: none"> 1. Atherosclerosis. 2. Coronary heart disease. 3. Hypertensive heart disease. 4. Rheumatic diseases. Heart defects. 	16

9.	Section 9. Pathological anatomy of the urinary system diseases.	1. Kidney disease. 2. Diseases of the urinary tract.	4
10.	Section 10. Pathological anatomy of diseases of the digestive system.	1. Liver disease 2. Gallbladder disease 3. Diseases of the bile ducts 4. Diseases of the stomach. 5. Diseases of the intestine.	8
11.	Section 11. Pathological anatomy of infectious diseases of bacterial and mycotic nature.	1. Introduction to infection. Tifa. 2. Diphtheria. Scarlet fever. Bacillary dysentery. 3. Bronchitis. Pneumonia. 4. Tuberculosis. 5. Syphilis. 6. Leprosy. 7. Mycoses.	24
12.	Section 12. Pathological anatomy of infectious diseases of viral nature.	1. Influenza. 2. Measles.	4
13.	Section 13. Pathological anatomy of parasitic diseases.	1. Parasitic diseases. 2. Helminthiases.	8
14.	Section 14. Pathological anatomy of quarantine infections and sepsis.	1. Quarantine infection. 2. Sepsis.	8

7. Practical lessons *are not provided*

8. Material and technical support of the discipline:

1. Museum of macropreparations on different types of human pathology.
2. Set of micropreparations on different types of pathology.
3. Binocular microscopes to study micropreparations.
4. Tables with different types of pathology.
5. Computers and multimedia projectors.
6. Discs with multimedia presentations of lecture material and photomicrographs to each laboratory class.

9. Information support of the discipline:

Databases, reference and search systems:

1. Electronic Library System (ELS) of the RUDN University and third-party ELS, to which university students have access on the basis of concluded contracts:
 - ELS RUDN <http://lib.rudn.ru/MegaPro/Web>
 - ELS «Университетская библиотека онлайн» <http://www.biblioclub.ru>
 - ELS Юрайт <http://www.biblio-online.ru>

- ELS «Консультант студента» www.studentlibrary.ru
- Complete magazine collection Cambridge University Press <https://www.cambridge.org/core>
- Dentistry & Oral Sciences Source, company collection EBSCO Publishing
<http://search.ebscohost.com/>
- Magazines published Nature Publishing Group <http://www.nature.com/siteindex/index.html>
- Oxford Journals, complete magazine collection <https://academic.oup.com/journals/>
- Archive of scientific journals of the publishing house SAGE Publications
<http://arch.neicon.ru/xmlui/handle/123456789/2757634/browse?type=source>
- Science online, company American Association for the Advancement of Science (AAAS)
<http://science.sciencemag.org/content/by/year>
- ScienceDirect (ESD), «FreedomCollection», "Elsevier" <http://www.sciencedirect.com/>
- Electronic resources of the publishing house Springer <https://rd.springer.com/>
- Taylor & Francis journals <https://www.tandfonline.com/>
- Thieme <https://science-of-synthesis.thieme.com/>
- Wiley Online Library - multidisciplinary journal collection
<http://www.wileyonlinelibrary.com/>

2. Databases and search engines:

Discipline page at TUIS RUDN:

<https://esystem.rudn.ru/course/view.php?id=7484>

U.S. National Library of Medicine National Institutes of Health:

<http://www.ncbi.nlm.nih.gov/pubmed/>

Scientific electronic library:

<http://elibrary.ru/defaultx.asp>

Website of the Russian Society of Pathologists

<http://patolog.ru>

Royal College of Pathologists website (The Royal College of Pathologists)

<https://www.rcpath.org/>

Pathological Anatomy Information Database

<https://www.pathologyoutlines.com/>

Online courses archive of video lectures on pathological anatomy Medical School Pathology

<https://www.medicalschoolpathology.com/>

University of Utah Pathological Anatomy Laboratory

<https://webpath.med.utah.edu/>

Information online resource on pathological anatomy

<http://www.pathguy.com/>

Base of microslides WebPathology

<https://www.webpathology.com/>

Collection of microslides Juan Rosai's Collection

<https://www.rosaicollection.org/>

10. Educational and methodical support of the discipline:

a) main literature:

1. Babichenko I.I., Ivina A.A. Basic Pathological Processes. Brief Review. Speciality «General Medicine» [Электронный ресурс]: Учебно-методическое пособие. - М. : Изд-во РУДН, 2019. - 52 с. - ISBN 978-5-209-08944-5.
http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=478311&idb=0

b) additional literature:

1. Rubin Pathology. - 6th Edition – Lippincott Williams and Wilkins, 2012.
2. Clarke M.R., Weyant R.J., Watson Ch.G, Garty S.E.// Human Pathol.-1998.-Vol.28

3. Cotran R.S., Kumar Y., Collins T. Robbins pathologic basic of disease. - 6-th ed. - Philadelphia etc.: W.B. Saunders Company, 1999. - 1425 p.
4. Gresham G.A., Turner A.F. Post-Mortem Procedures (an Illustrated Textbook). – London: Wolfe Medical Publication, 1979. – 160 p.
5. Gross techniques in surgical pathology / Ackerman's surgical pathology // 8th ed. J. Rosai - 8th ed.- St. Louis etc.: Mosby - Year Book, Inc., 1996, - P.13-62.
6. Dabbs D.J.(E.D), Diagnostic Immunohistochemistry.-Edinburg,Churchill Lingstone,2002.

11. Guidelines for students on the development of the discipline:

At the workshops and lectures in the classroom conducted analysis of relevant topics using multimedia technology (computer, projector). For each classroom lecture and presentation are prepared in the program Microsoft Power Point, containing from 10 to 60 slides. The main purpose of practical training is to study the morphological basis of the pathogenesis and outcome of typical pathological processes and diseases of individual organs and systems.

Self-study of the student

Independent work of students in extracurricular hours can pass both in the classrooms of the department where students can study the macro and the slides.

Training manuals in electronic form on a number of topics studied posted on the Department of Pathological Anatomy at TUIS RUDN:

<https://esystem.rudn.ru/course/view.php?id=7484>

Summaries and abstracts on various sections of the course prepared by students provide as a form of self-study.

Students' independent work includes:

- Study material for textbooks, teaching aids on paper and electronic media.
- Preparation of a report messages on the chosen topic.
- Preparation for tests and test tasks.

Current control.

Control of knowledge and success of the curriculum in terms of full-time training is conducted in the form of an oral quiz.

Boundary control.

The control of knowledge and the success of mastering the curriculum in the conditions of full-time training is carried out in the form of an oral interview.

Final control (interim certification).

The final control of knowledge is carried out in the form of a set-off (in the 5th semester) and an exam (in the 6th semester). The set-off and exam are conducted in the form of an oral interview with the student. The student must demonstrate knowledge of the morphology of typical pathological processes and diseases, primary pathological reactions, the development of cause-and-effect relationships in the pathology of the whole organism, the importance of the organism's reactivity in the emergence, development and outcome of typical pathological processes and diseases, patterns of pathogenesis and sanogenesis of typical pathological processes and diseases, stages of development of typical pathological processes and diseases, their complications and outcomes, syndromes and symptoms of the most common diseases, principles of etiologic, pathogenetic and symptomatic treatment of typical pathological processes and diseases. Also, on the exam, the student is required to be able to accurately diagnose in the study of macro- and micropreparations and skills in solving clinical problems.

The passage of each section ends with a boundary control of knowledge in the form of an oral interview with a student. In the process of boundary control, the student must show his knowledge and skills on the topic covered.

The study of general pathology ends with the passing of an exam - this is the final control (intermediate certification). The exam is taken by professors and associate professors of the Department of Pathologic Anatomy and takes the form of an oral interview. Accepted with exam paper.

12. Fund of estimated means for the interim assessment of students in the discipline.

Materials for assessing the level of mastering the educational material of the discipline "Pathologic anatomy, clinical pathologic anatomy", including a list of competencies with an indication of the stages of their formation, a description of indicators and criteria for assessing competencies at various stages of their formation, a description of assessment scales, standard control tasks or other materials, necessary for the assessment of knowledge, abilities, skills and (or) experience of activities that characterize the stages of the formation of competencies in the process of mastering the educational program, methodological materials defining the procedures for assessing knowledge, skills, skills and (or) experience of activities, characterizing the stages of formation of competencies, have been developed in full and are available for students on the discipline page at TUIS RUDN.

The program is compiled in accordance with the requirements of the FSES HE.

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