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**Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
RUDN University**

Medical Institute

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

PATHOLOGICAL ANATOMY, CLINICAL PATHOLOGICAL ANATOMY

course title

Recommended by the Didactic Council for the Education Field of:

31.05.01 GENERAL MEDICINE

field of studies / speciality code and title

**The course instruction is implemented within the professional education programme
of higher education:**

GENERAL MEDICINE

higher education programme profile/specialisation title

1. COURSE GOAL(s)

The aim of the course "**Pathological anatomy, clinical pathological anatomy**" is to acquire knowledge about the structural foundations of diseases, to study the most typical and characteristic changes at the macro- and microscopic levels of the diseases, to comprehend the theoretical foundations of medicine, a more in-depth study of the clinic and the use of the acquired knowledge in the work of a general practitioner.

2. REQUIREMENTS FOR THE LEARNING OUTCOMES OF THE COURSE

The learning outcome of the course "**Pathological anatomy, clinical pathological anatomy**" is aimed at developing the following competencies in students:

GPC-5.1; GPC-5.2; GPC-5.3.; PC-2.7

(In accordance with the Federal State Educational Standard for Higher Education 3++ 31.05.01 Medicine).

Table 2.1. List of competencies formed by students during the development of the discipline (learning outcomes of the discipline)

Competence code	Competence descriptor	Competence formation indicators (within the given course)
GPC-5	Being able to assess morpho-functional, physiological conditions and pathological processes in the human body to solve professional tasks	GPC-5.1. Mastering the algorithm of clinical, laboratory and functional diagnosis when dealing with 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.
PC-2	Being able to examine a patient in order to determine a diagnosis	PC-2.7 Being able to carry out differential diagnosis with other diseases/conditions, including the urgent ones, as well as to make a diagnosis taking into account the current international statistical classification of diseases and problems related to health (ICD).

3. COURSE IN THE HIGHER EDUCATION PROGRAM STRUCTURE

Course "**Pathological anatomy, clinical pathological anatomy**" refers to the mandatory part; block B1 of the Higher Education Program.

As part of the Higher Education Program, students also master other disciplines and/or practices that contribute to the achievement of the planned results of mastering the discipline "**Pathological Anatomy, Clinical Pathological Anatomy**".

Table 3.1. List of Higher Education Program components that contribute to the expected learning outcome:

Code	Name of the competence	Previous disciplines/modules, practices*	Subsequent discipline/modules practices*
GPC-5	Being able to assess morpho-functional, physiological conditions and pathological processes in the human body to solve professional tasks	Biochemistry; Normal physiology; Biology; Microbiology, virology; Propaedeutics of internal diseases; Chemistry; Bioorganic chemistry; Anatomy; Histology, embryology, cytology;	Obstetrics and gynecology; Oncology, radiation therapy; Molecular genetic methods; Methods of microbiological diagnosis; Phthisiatry; Anesthesiology, intensive care, intensive care; Ophthalmology; Methods of cell biology and histology; Topographic anatomy and operative surgery; Forensic medicine; Maxillofacial surgery; Medical Criminology; Otorhinolaryngology. Pediatrics; Autopsy course;
PC-2	Being able to examine a patient in order to determine a diagnosis	Propaedeutics of internal diseases; Microbiology, virology; Molecular genetics in practical biology and medicine**;	Practice of surgical profile: assistant to a surgeon; Assistant to a physician of a therapeutic profile ; Assistant to a physician of a therapist; Practice of a general medical profile: assistant to a doctor of an outpatient polyclinic institution; Obstetric and gynecological practice: obstetrician's assistant; Obstetric and gynecological practice: gynecologist's assistant; General medical practice: pediatrician's assistant; Dermatovenerology; Neurology, medical Genetics, Neurosurgery; Ophthalmology; Faculty Surgery; Occupational diseases; Hospital therapy; Endocrinology; Outpatient therapy; Hospital surgery, pediatric surgery; Pediatrics; Obstetrics and Gynecology; Anesthesiology, intensive care, intensive care;

Code	Name of the competence	Previous disciplines/modules, practices*	Subsequent discipline/modules practices*
			Oncology, radiation therapy; Otorhinolaryngology Reproductive health; Traumatology, Orthopedics Faculty therapy; Maxillofacial surgery; General medical skills; Emergency conditions; Urology; Infectious diseases; Psychiatry, medical psychology; Allergology; Phthisiatry; Endoscopic Urology; Telemedicine; Clinical Dentistry; Current issues of neonatology**; Topical Issues of Neonatology**; Cardiology in quests; Molecular Genetic methods; Methods microbiological diagnostics; Evidence-based medicine; Autopsy course;

* - filled in in accordance with the matrix of competencies and stable curriculum of the educational program of higher education

** - elective disciplines/practices

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

Course workload of the course "Pathological anatomy, clinical pathological anatomy" is «7» credits.

Table 4.1 Types of academic work by periods of development of Educational Program of higher education for full-time education

Type of academic activity	TOTAL, academic hours	Semester(s)		
		5	6	
<i>Classroom learning academic hours</i>	175	90	85	
including:				
Lectures (Lec)	35	18	17	
Laboratory works (Lab)	140	72	68	
Seminars (Practice/tutorials)				
<i>Self-study, academic hours</i>	32	27	5	
<i>Evaluation and assessment (exam or pass/fail grading)</i>	45	27	18	
Course workload	Academic hours	252	144	108
	Credits	7	4	3

5. COURSE MODULES AND CONTENTS

Table 5.1. Content of the discipline (module) by type of academic activity

Modules and Topics	Section content (topics)	Type of academic activity*
Module 1 Pathoanatomy of cells and tissues.	Topic 1.1. Reversible cell damage. Pathology of protein metabolism.	Lec, Lab
	Topic 1.2. Pathology of fat and mineral metabolism.	Lec, Lab
	Topic 1.3. Disorders of pigment metabolism.	Lec, Lab
	Topic 1.4. Irreversible cell damage. Necrosis. Apoptosis.	Lec, Lab
Module 2 Pathoanatomy of blood and lymph circulation disorders	Topic 2.1. Circulatory disorders.	Lec, Lab
	Topic 2.2. Thrombosis. Embolism.	Lec, Lab
Module 3 Pathoanatomy of inflammation, healing and tissue repair.	Topic 3.1. Exudative inflammation.	Lec, Lab
	Topic 3.2. Productive inflammation.	Lec, Lab
Module 4 Pathoanatomy of compensatory and adaptive processes.	Topic 4.1. Compensatory and adaptive processes (atrophy, hypertrophy, regeneration, wound healing, metaplasia).	Lec, Lab
Module 5 Pathoanatomy of tumors.	Topic 5.1. Tumors from the epithelium.	Lec, Lab
	Topic 5.2. Particular forms of cancer.	Lec, Lab
	Topic 5.3. Tumors of mesenchymal and mesodermal origin.	Lec, Lab
Module 6 Pathoanatomy of blood and bone marrow cells.	Topic 6.1. Hemoblastoses.	Lec, Lab
	Topic 6.2. Anemia.	Lec, Lab
Module 7 Pathoanatomy of diseases of the cardiovascular system.	Topic 7.1. Atherosclerosis.	Lec, Lab
	Topic 7.2. Coronary heart disease.	Lec, Lab
	Topic 7.3. Hypertension.	Lec, Lab
	Topic 7.4. Rheumatic diseases. Heart defects.	Lec, Lab
Module 8 Pathoanatomy of diseases of the urinary system.	Topic 8.1. Kidney diseases.	Lec, Lab
	Topic 8.2. Diseases of the urinary tract.	Lec, Lab
Module 9 Pathoanatomy of diseases of the digestive system.	Topic 9.1. Liver diseases.	Lec, Lab
	Topic 9.2. Diseases of the gallbladder.	Lec, Lab
	Topic 9.3. Stomach diseases.	Lec, Lab
	Topic 9.4. Intestinal diseases.	Lec, Lab
Module 10	Topic 10.1. Introduction to infections. Typhus.	Lec, Lab

Modules and Topics	Section content (topics)	Type of academic activity*
Pathoanatomy of infectious diseases of bacterial and mycotic nature.	Topic 10.2. Diphtheria. Scarlet fever. Bacillary dysentery.	Lec, Lab
	Topic 10.3. Bronchitis. Pneumonia.	Lec, Lab
	Topic 10.4. Tuberculosis.	Lec, Lab
	Topic 10.5. Syphilis.	Lec, Lab
	Topic 10.6. Leprosy.	Lec, Lab
	Topic 10.7. Mycoses.	Lec, Lab
Module 11 Pathoanatomy of infectious diseases of viral nature.	Topic 11.1. Flu.	Lec, Lab
	Topic 11.2. Measles.	Lec, Lab
Module 12 Pathoanatomy of parasitic diseases.	Topic 12.1. Parasitic diseases.	Lec, Lab
	Topic 12.2. Helminthiasis.	Lec, Lab
Module 13 Pathoanatomy of quarantine infections and sepsis.	Topic 13.1. Quarantine infections.	Lec, Lab
	Topic 13.2. Systemic inflammatory reaction syndrome.	Lec, Lab
	Topic 13.3. Sepsis.	Lec, Lab
	Topic 13.4. Multiple organ failure syndrome.	Lec, Lab

* - to be completed only in the **FULL**-TIME form of study: *lectures; laboratory work; seminars; self-study.*

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Material and technical support of the discipline

Classroom for Academic Activity Type	Classroom equipment	Specialized educational/laboratory equipment, software and materials for the development of the course. (if necessary)
Lecture	Classroom for conducting lecture-type classes, equipped with a set of specialized furniture; a blackboard (screen) and technical means of multimedia presentations.	
Laboratory (2)	An auditorium for conducting laboratory work, individual consultations, routine monitoring and intermediate certification, equipped with a whiteboard, a set of specialized furniture and equipment (Dell Optiplex 3080 Micro Mini PC, LG 49UK6200 TV). Software: Microsoft products (OS, office suite, including Office 365).	Museum of macro-preparations for various types of human pathology; A set of micro-preparations for various types of pathology; Binocular microscopes for studying micro-preparations; Tables for various types of pathology.
Seminary (1)	An auditorium for conducting seminar-type classes, group and individual consultations, ongoing monitoring and	

Classroom for Academic Activity Type	Classroom equipment	Specialized educational/laboratory equipment, software and materials for the development of the course. (if necessary)
	intermediate certification, equipped with a graphite board, a set of specialized furniture and technical multimedia presentation tools (Dell Optiplex 3080 Micro Mini PC, LG 49UK6200 TV). Software: Microsoft products (OS, office suite, including Office 365).	
Seminary (3a)	An auditorium for conducting seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification, equipped with a graphite board, a set of specialized furniture and technical multimedia presentation tools (Dell Optiplex 3080 Micro Mini PC, LG 49UK6200 TV). Software: Microsoft products (OS, office suite, including Office 365).	
Seminary (3b)	An auditorium for conducting seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification, equipped with a set of specialized furniture and technical multimedia presentation tools (NEC VT59 projector).	
For self-study of students (3b)	Classroom for self-study of students (can be used for consultations), equipped with a set of specialized furniture and a graphite board.	

* - the audience for self-study of students is **MANDATORY!**

7. RECOMMENDED SOURCES FOR COURSE STUDIES

Main reading (sources):

1. Kumar, Vinay, et al. Robbins & Kumar Basic Pathology. 11th ed., illustrated, Elsevier, 2022, 840p.- ISBN 978-0-323-79018-5
2. Mohan, Harsh. Practical Pathology. India, Jaypee Brothers Medical Publishers, 2021, 294p.
3. Nayak, Ramadas., Nayak, Rakshatha. Exam Preparatory Manual for Undergraduates: Pathology. India: Jaypee Brothers Medical Publishers Pvt. Limited, 2020, 942p. ISBN 978-9-389-77640-9

4. Pathological anatomy [Electronic resource]: Textbook / A.I. Strukov, V.V. Serov; Edited by V. S. Paukov. - 6th ed., reprint. and additional - M.: GEOTAR-Media, 2023. - 880 p.: ill. <https://www.studentlibrary.ru/book/ISBN9785970461396.html>
5. Babichenko I. I., Ivina A. A., Kudryavtseva L. V. Guide to laboratory exercises in pathological anatomy, Moscow: RUDN University, 2021, 262 p.
6. Ivina A. A., Kudryavtseva L. V., Kudryavtsev G. Yu. Specific forms of cancer: lung cancer, gastric cancer, uterine cancer, ovarian cancer, breast cancer [Electronic resource]: Training manual for practical training in pathological anatomy. Moscow: RUDN Publishing House, 2019. – 40p.
http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=478309&idb=0
7. Ivina A. A., Kudryavtseva L. V., Kudryavtsev G. Yu. Parasitic diseases: malaria, amoebiasis, schistosomiasis, leishmaniasis, trypanosomiasis, echinococcosis.: RUDN Publishing House, 2019. – 28 p. – ISBN 978-5-209-08941-4.
http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=478308&idb=0

Additional (optional) reading (sources)

Electronic full-text materials:

1. Pathologic anatomy [Electronic resource]: Textbook / A. I. Strukov, V. V. Serov; Ed. V. S. Paukova 6th ed., revised. and additional - M.: GEOTAR-Media, 2015. - 880 p.: ill. (in Russian).
http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=456496&idb=0

Printed publications:

1. Mohan, Harsh. Textbook of Pathology. India, Jaypee Brothers Medical Publishers Pvt. Limited, 2018, 1028p. – ISBN 978-9-352-70547-4.
2. Babichenko I. I., Ivina A. A., Kudryavtseva L. V. Guide to laboratory exercises in pathological anatomy, Moscow: RUDN University, 2019, 270 p.
3. Pathological anatomy [Electronic resource]: Textbook / A. I. Strukov, V. V. Serov; Ed. V. S. Paukova, 6th ed., reprint. : Moscow: GEOTAR-Media, 2015, 880 p. (in Russian).
http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=456496&idb=0
4. Babichenko I.I., Ivina A.A., Kharchenko N.M. Brief description of the main pathological processes. Specialty "Medicine". - M.: Publishing House of RUDN University, 2014. - 47 p.
5. Babichenko I.I., Ivina A.A. Dictionary of basic pathoanatomical terms. Specialty "Medicine". - M.: Publishing House of RUDN University, 2014. - 48 p.
6. Gribunov Yu.P., Rogov K.A., Shestakova I.N., Ivina A.A. Basic principles of registration of the final clinical and pathoanatomical diagnoses. - M.: Publishing house of RUDN University, 2015.- 19 p.
7. Vladimirtseva A.L. parasitic diseases. Educational and methodical manual for a practical lesson in pathological anatomy. - M.: RUDN, 2009. - 31 p.
8. Gribunov Yu.P., Shestakova I.N., Babichenko I.I. immunopathological processes. Educational and methodical manual for a practical lesson in pathological anatomy. - M.: RUDN, 2009. - 23 p.

Internet-(based) sources:

1. Electronic libraries with access for RUDN students

1. -RUDN University Electronic Library System-RUDN [University Electronic Library System](http://lib.rudn.ru/MegaPro/Web) <http://lib.rudn.ru/MegaPro/Web>
 - EBS "University Library online" <http://www.biblioclub.ru>
 - EBS Urite <http://www.biblio-online.ru>
 - EBS "Student's consultant" www.studentlibrary.ru
 - EBS "Lan" <http://e.lanbook.com/>
 - EBS "Troitsky Bridge"
 - Full collection of Cambridge University Press journals <https://www.cambridge.org/core>
 - Journals, published by Nature Publishing Group <http://www.nature.com/siteindex/index.html>
 - Oxford Journals, a complete collection of journals <https://academic.oup.com/journals/>
 - Archive of scientific journals published by SAGE Publications <http://arch.neicon.ru/xmlui/handle/123456789/2757634/browse?type=source>
 - Science online, American Association for the Advancement of Science (AAAS) <http://science.sciencemag.org/content/by/year>
 - ScienceDirect (ESD), «FreedomCollection», ИД "Elsevier" <http://www.sciencedirect.com/>
 - Electronic resources of Springer publishing house <https://rd.springer.com/>
 - Taylor & Francis journals <https://www.tandfonline.com/>
 - Thieme <https://science-of-synthesis.thieme.com/>
 - Wiley Online Library - a multidisciplinary collection of journals <http://www.wileyonlinelibrary.com/>

2. Databases and search engines:

- Discipline page in TUIS RUDN University: <https://esystem.rudn.ru/course/view.php?id=2079>
- 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://patholog.ru>
- Website of 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/>
- Online Pathological Anatomy Laboratory of the University of Utah <https://webpath.med.utah.edu/>
- Information online resource on pathological anatomy <http://www.pathguy.com/>
- WebPathology Slides Database

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

- Micropreparations Juan Rosai's Collection

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

Learning toolkits for self-studies during the development of the discipline *:

1. A course of lectures on the discipline "**Pathological Anatomy, Clinical Pathological Anatomy**".

2. Laboratory practice on the discipline "**Pathological anatomy, clinical pathological anatomy**".

3. Guidelines for the implementation and design of control and self-study in the discipline "**Pathological Anatomy, Clinical Pathological Anatomy**".

* - all educational and methodological materials for independent work of students are placed in accordance with the current procedure on the page of the discipline on **TUIS!**

8. EVALUATION TOOLKIT AND SCORE-RATING SYSTEM FOR ASSESSING THE LEVEL OF FORMATION OF COMPETENCES IN THE COURSE

Evaluation Toolkit (ET) and a score-rating system (SRS)* for assessment the level of competence formation (part of competencies) based on the results of mastering the discipline "**Pathological Anatomy, Clinical Pathological Anatomy**" are presented in the appendix to this Working Program of the Course.

* - * - ET and SRS are formed on the basis of the requirements of the relevant local regulatory act of the RUDN University.

DEVELOPERS:

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Position, Basic training unit

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