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**Federal State Autonomous Educational Institution for Higher Education PEOPLES'  
FRIENDSHIP UNIVERSITY OF RUSSIA  
Agrarian and Technological Institute**

## **WORKING COURSE SYLLABUS**

### **Pathological anatomy**

**Recommended by the Methodological Council for the Education Field:**

**36.05.01 Veterinary medicine**

## 1. GOALS AND OBJECTIVES OF THE DISCIPLINE

The aim of mastering the discipline "**Pathological anatomy**" is to form students' knowledge of the organizational, scientific and methodological foundations of recognizing the causes and pathogenesis of pathological processes and diseases, allowing to establish the sequence of development of structural changes in the body and special knowledge for forensic examinations.

## 2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The development of the discipline "**Pathological anatomy**" is aimed at creating the following competencies (parts of competencies) for students:

*Table 2.1. List of competencies formed by students during the development of the discipline (results of the development of the discipline)*

Code	Competence	Indicators of competence accomplishment (within the discipline)
GPC -1	The ability to determine the biological status and normative clinical indicators of organs and systems of the animal body.	GPC-1.1 Knows the structure and functions of the main systems of the animal body, taking into account the specific features
		GPC-1.2 He s able to predict the expected violations of the biological status in case of suspected development of diseases
		GPC-1.3 He is able to determine the main indicators of the activity of individual body systems and draw conclusions about the presence of deviations from the standard values
		GPC-1.4 Has the skills of sampling biological fluids and tissues for research, performing laboratory tests, interpreting research results.
GPC-2	The ability to interpret and evaluate in professional activity the influence of natural, socio-economic, genetic and economic factors on the physiological state of the animal organism.	GPC-2.1 Has knowledge of the influence of natural, socio-economic, genetic and economic factors on the animal body.
		GPC-2.2 He is able to establish the presence and reliability of cause-and-effect relationships between the effects of certain etiological factors on the animal's body and the development of diseases.
		GPC-2.3 Possesses methods of preventive and curative correction of the effects of adverse environmental factors that can

		cause deterioration of animal health.
GPC -4	The ability to use methods of solving problems using modern equipment in the development of new technologies in professional activity and to use modern professional methodology for conducting experimental research and interpreting their results.	GPC-4.1 Possesses the conceptual and methodological apparatus of basic natural sciences at a level sufficient for full-fledged professional activity at the modern level.
		GPC-4.2 He knows the methods of solving problems using modern equipment.
		GPC-4.3 He is ready to use modern methodology in the development and conduct of experimental research.
		GPC-4.4 Uses modern professional methodology in interpreting research results.
GPC -5	The ability to draw up special documentation, analyze the results of professional activity and submit accounting documents using specialized databases.	GPC-5.1 Has the skills to search for the necessary forms of documentation on official websites and in specialized databases.
		GPC-5.2 Possesses professional terminology and skills in filling out analytical and reporting documents of a professional orientation.
		GPC-5.3 He is able to use specialized software to analyze the results of professional activity and compile accounting documentation.
GPC -6	The ability to analyze, identify and assess the risk of the risk of the occurrence and spread of diseases.	GPC-6.1 Has knowledge in the field of etiology and pathogenesis of animal diseases of different species.
		GPC-6.2 Has the skills to diagnose non-infectious, infectious and invasive diseases, identify pathogens of infectious and invasive diseases in animals.
		GPC-6.3 He knows the patterns of the occurrence and spread of diseases in animal populations, factors predisposing to diseases and the causes of possible complications.
PC -2	The ability to conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the further research program, as well as in accordance with the plan of antiepidemiological measures,	PC-2.1 He is able to conduct a general clinical study of animals of different species in order to establish a preliminary diagnosis and determine the further research program
		PC-2.2 He is able to conduct mass clinical

	the plan of prevention of non-infectious animal diseases	studies of animals in accordance with the plan of antiepidemiological measures, the plan of prevention of non-infectious animal diseases
PC -3	Ability to develop animal research programs using special (instrumental) and laboratory methods.	PC-3.1 He is able to develop individual animal research programs, including the use of special (instrumental) and laboratory methods to detect deviations from the physiological norm of the state of a living organism, conduct differential diagnosis of the detected pathology or control the course of the disease and the effectiveness of the prescribed treatment.
		PC-3.2 Capable of developing mass comprehensive animal research programs (medical examination programs) of animals, taking into account their type and purpose, both general and special.
PC -4	The ability to conduct clinical studies of animals using special (instrumental) and laboratory methods to clarify the diagnosis.	PC-4.1 Able to conduct additional animal studies using laboratory methods to clarify the diagnosis.
		PC-4.2 Able to conduct additional animal studies using special (instrumental) methods to clarify the diagnosis.
PC -5	The ability to make a diagnosis based on the analysis of anamnesis data, general, special (instrumental) and laboratory research methods.	PC-5.1 He is able to diagnose patients of various types based on the analysis of anamnesis data, general, special (instrumental) and laboratory research methods.
		PC -5.2 He is able to predict the risks of diseases based on anamnestic data, the results of general, special (instrumental) and laboratory studies.
PC -10	The ability to determine the need for the use of surgical methods in the treatment of animals.	PC-10.1 Able to determine the need for the use of surgical methods in the treatment of animals;
		PC-10.2 Able to choose the optimal surgical method for the patient, taking into account the external conditions and the status of the patient's body, and if necessary, several manipulations - their order and time distribution;
		PC-10.3 He is able to take into account the risks and possible complications accompanying surgical interventions and take measures to prevent them.

PC -11	Ability to develop a surgical operation plan, including the choice of analgesia method	PC-11.1 Able to develop a surgical operation plan;
		PC-11.2 He is able to choose and justify the optimal variant of anesthesia of the patient during surgery and in the postoperative period.
PC -12	The ability to perform surgical intervention in the body of animals in the treatment of various diseases, castration, sterilization, for cosmetic purposes.	PC-12.1 He is able to prepare the premises, equipment and consumables necessary for surgical intervention, taking into account the requirements of asepsis and antiseptics.
		PC-12.2 He is able to prepare the operating team for surgical intervention, taking into account the requirements of asepsis and antiseptics.
		PC-12.3 He is able to prepare the patient for surgical intervention, taking into account the requirements of asepsis and antiseptics.
		PC-12.4 He is able to assist the operating surgeon during surgical interventions.
		PC-12.5 He is capable of carrying out preventive and economic operations (including castration, dehydration, etc.) in farm animals and companion animals.
		PC-12.6 He is capable of independently performing diagnostic and therapeutic operations in animals of different species, taking into account the species, age and individual characteristics of patients.
PC -14	The ability to conduct repeated examinations and studies of animals to assess the effectiveness and safety of the prescribed treatment and adjust the treatment plan of animals (if necessary) based on the results of the evaluation of the effectiveness of treatment	PC-14.1 He is able to develop a plan of repeated studies necessary and sufficient to assess the predicted changes in the patient's health
		PC-14.2 He is able to conduct a repeated clinical examination, taking into account the specifics of diseases previously diagnosed in the patient
		PC-14.3 He is able to carry out the necessary repeated instrumental and laboratory tests
		PC-14.4 He is able to analyze the identified changes, evaluate the effectiveness of the treatment and, if necessary, correct the prescribed course of treatment.

PC -18	The ability to draw up a plan for the medical examination of animals, taking into account their types and purpose, to conduct medical examinations, to develop recommendations for carrying out preventive and curative measures based on the results of the examination of animals conducted as part of the medical examination	PC-18.1 He is able to make a plan for the medical examination of animals, general or specialized, taking into account their types and purpose
		PC-18.2 He is able to organize and conduct medical examination according to the drawn up plan
		PC-18.3 He is able, based on the results of medical examination, to give recommendations on the implementation of therapeutic and preventive and curative measures aimed at improving the health of a group of animals
PC -19	He is able, based on the results of medical examination, to give recommendations on the implementation of therapeutic and preventive and curative measures aimed at improving the health of a group of animals	PC-19.1 He is able to conduct a general examination of animal corpses before autopsy
		PC-19.2 He is able to perform autopsy of animal corpses using special tools and compliance with safety requirements
		PC-19.3 He is able to establish the cause of death and pathoanatomic diagnosis in accordance with generally accepted criteria and classifications, lists of animal diseases
		PC -19.4 He is able to formalize the results of a postmortem diagnostic examination of an animal in the autopsy protocol
PC -24	Ability and willingness to promote veterinary knowledge, including in the field of prevention of animal diseases.	PC -24.1 He is able to set goals in the field of veterinary knowledge promotion, plan the strategy and tactics of upcoming events.
		PC -24.2 He is able to use computer and telecommunication facilities for the preparation and demonstration of materials used in the process of promoting veterinary knowledge.
		PC -24.3 He is able to conduct conversations, lectures, seminars for employees of the organization in order to explain the principles of work on the prevention of animal diseases.

### 3. COURSE IN HIGHER EDUCATION

The discipline "**Pathological anatomy**" refers to the mandatory part of block B1 of the Educational Program of Higher Education.

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

*Table 3.1. List of Higher Education Program components disciplines that contribute to expected learning outcomes*

<b>Competence code</b>	<b>Competence</b>	<b>Previous Disciplines (Modules)</b>	<b>Subsequent Disciplines (Modules)</b>
GPC -1	The ability to determine the biological status and normative clinical indicators of organs and systems of the animal body.	Animal anatomy Cytology, histology and embryology Physiology and ethology of animals Pathological physiology Clinical diagnosis	Instrumental diagnostic methods Obstetrics, gynecology and andrology Immunology Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Veterinary and industrial laboratories with the basics of design Bee diseases and entomophages Fish pathology and aquaculture Anesthesiology, intensive care and intensive care
GPC -2	The ability to interpret and evaluate in professional activity the influence of natural, socio-economic, genetic and economic factors on the physiological state of the animal organism.	Biology with the basics of ecology Veterinary genetics Veterinary microbiology and mycology Virology and biotechnology Physiology and ethology of animals Breeding with the basics of private animal husbandry Animal health and welfare	Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Forensic veterinary

		Pathological physiology Veterinary Radiobiology	examination and autopsy of animals Immunology General and veterinary ecology Veterinary sanitation Forage plants Zoopsychology Animal Health Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets Bee diseases and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Veterinary Ophthalmology Animal Dentistry
GPC -4	The ability to use methods of solving problems using modern equipment in the development of new technologies in professional activity and to use modern professional methodology for conducting experimental research and interpreting their results.	Inorganic and analytical chemistry Organic Chemistry Biological physics Computer science Physical and colloidal chemistry Cytology, histology and embryology Biological chemistry Veterinary microbiology and mycology Virology and biotechnology Physiology and ethology of animals	Operative surgery with topographic anatomy Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Mathematics Immunology



		<p>Breeding with the basics of private animal husbandry  Pathological physiology  Veterinary Radiobiology  Clinical diagnosis</p>	<p>Veterinary sanitation  Technology of processing livestock products  Medicinal and poisonous plants  Forage plants  Fundamentals of intellectual work  Personality psychology and professional self-determination  Clinical laboratory diagnostics  Laboratory diagnostics of infectious and invasive diseases  Diseases of horses  Diseases of productive animals  Diseases of small pets  Diseases of small pets  Bee diseases and entomophages  Fish pathology and aquaculture  Diseases of exotic animals  Anesthesiology, intensive care and intensive care  Dermatology  Cardiology  Endocrinology  Nephrology  Reconstructive and reconstructive surgery  Veterinary Ophthalmology  Animal Dentistry</p>
GPC -5	<p>The ability to draw up special documentation, analyze the results of professional activity and submit accounting documents using specialized databases.</p>	<p>Veterinary genetics  Computer science  Breeding with the basics of private animal husbandry  Clinical diagnosis</p>	<p>Operative surgery with topographic anatomy  Instrumental diagnostic methods  Obstetrics, gynecology and andrology  Internal non-infectious diseases</p>

			Parasitology and invasive diseases Epizootology and infectious diseases Veterinary and sanitary examination Organization of veterinary business Forensic veterinary examination and autopsy of animals Veterinary deontology Economics and organization of agricultural production Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Organization of state veterinary supervision Veterinary and industrial laboratories with the basics of design Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology
GPC -6	The ability to analyze, identify and assess the risk of the risk of the occurrence and spread of diseases.	Biology with the basics of ecology Life safety Veterinary microbiology and mycology Virology and biotechnology Animal health and welfare Feeding animals with the basics of feed production Veterinary Radiobiology	Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Veterinary and sanitary

		Clinical diagnosis	<p>examination  Organization of veterinary business  Forensic veterinary examination and autopsy of animals  Introduction to the specialty  General and veterinary ecology  Veterinary sanitation  Technology of processing livestock products  Medicinal and poisonous plants  Forage plants  Animal Health  Clinical laboratory diagnostics  Laboratory diagnostics of infectious and invasive diseases  Organization of state veterinary supervision  Diseases of horses  Diseases of productive animals  Diseases of small pets  Diseases of small pets  Bee diseases and entomophages  Fish pathology and aquaculture  Diseases of exotic animals  Anesthesiology, intensive care and intensive care  Veterinary  Ophthalmology  Animal Dentistry</p>
PC -2	The ability to conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the further research	<p>Animal anatomy  Physiology and ethology of animals  Pathological physiology  Clinical diagnosis</p>	<p>Obstetrics, gynecology and andrology  Bee diseases and entomophages  Fish pathology and aquaculture</p>

	program, as well as in accordance with the plan of antiepidemiologic measures, the plan of prevention of non-infectious animal diseases		Anesthesiology, intensive care and intensive care
PC -3	Ability to develop animal research programs using special (instrumental) and laboratory methods	Animal Anatomy Organic Chemistry Biological physics Physical and colloidal chemistry Biological chemistry Veterinary microbiology and mycology Virology and biotechnology Physiology and ethology of animals Pathological physiology Clinical diagnosis	Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Immunology Veterinary deontology Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Veterinary and industrial laboratories with the basics of design Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets Bee diseases and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology

			Endocrinology Nephrology Reconstructive and reconstructive surgery Veterinary Ophthalmology Animal Dentistry
PC -4	The ability to conduct clinical studies of animals using special (instrumental) and laboratory methods to clarify the diagnosis	Animal anatomy Biological physics Cytology, histology and embryology Biological chemistry Veterinary microbiology and mycology Virology and biotechnology Physiology and ethology of animals Pathological physiology Clinical diagnosis	Instrumental diagnostic methods Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Veterinary Ophthalmology Animal Dentistry
PC -5	The ability to make a diagnosis based on the analysis of anamnesis data, general, special (instrumental) and laboratory research	Veterinary genetics Cytology, histology and embryology Physiology and ethology of animals Breeding with the	Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery

	methods	basics of private animal husbandry Feeding animals with the basics of feed production Pathological physiology Clinical diagnosis	Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Forensic veterinary examination and autopsy of animals Zoopsychology Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets Bee diseases and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive and reconstructive surgery Veterinary Ophthalmology Animal Dentistry
PC -10	The ability to determine the need for the use of surgical methods in the treatment of animals	Veterinary genetics Cytology, histology and embryology Veterinary microbiology and mycology Physiology and ethology of animals Pathological physiology Clinical diagnosis	Obstetrics, gynecology and andrology General surgery Private Veterinary surgery Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets Diseases of exotic animals Dermatology Cardiology Endocrinology

			Nephrology Reconstructive and reconstructive surgery Veterinary Ophthalmology Animal Dentistry
PC -11	Ability to develop a surgical operation plan, including the choice of analgesia method	Animal anatomy Veterinary microbiology and mycology Physiology and ethology of animals Pathological physiology Veterinary Pharmacology	Operative surgery with topographic anatomy Obstetrics, gynecology and andrology General surgery Private Veterinary surgery Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive and reconstructive surgery
PC -12	The ability to perform surgical intervention in the body of animals in the treatment of various diseases, castration, sterilization, for cosmetic purposes	-	Operative surgery with topographic anatomy Obstetrics, gynecology and andrology Reconstructive and reconstructive surgery
PC -14	The ability to conduct repeated examinations and studies of animals to assess the effectiveness and safety of the prescribed treatment and adjust the treatment plan of animals (if necessary) based on the results of the evaluation of the effectiveness of treatment	Cytology, histology and embryology Physiology and ethology of animals Pathological physiology Veterinary Pharmacology Clinical diagnosis	Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Clinical laboratory diagnostics Diseases of horses Diseases of productive animals

			Diseases of small pets Diseases of small pets Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive and reconstructive surgery Veterinary Ophthalmology Animal Dentistry
PC -18	The ability to draw up a plan for the medical examination of animals, taking into account their types and purpose, to conduct medical examinations, to develop recommendations for carrying out preventive and curative measures based on the results of the examination of animals conducted as part of the medical examination	Veterinary genetics Physiology and ethology of animals Breeding with the basics of private animal husbandry Animal health and welfare Feeding animals with the basics of feed production Pathological physiology Veterinary Pharmacology Clinical diagnosis	Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Animal Health Clinical laboratory diagnostics Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets Diseases of exotic animals Dermatology Cardiology Endocrinology Nephrology Veterinary Ophthalmology Animal Dentistry
PC -19	Ability to perform post-mortem diagnostic examination of animals in order to establish pathological processes,	Animal anatomy Cytology, histology and embryology Life safety	Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases



	diseases, causes of death		<p>General surgery  Private Veterinary surgery  Parasitology and invasive diseases  Epizootology and infectious diseases  Veterinary and sanitary examination  Forensic veterinary examination and autopsy of animals  Clinical laboratory diagnostics  Laboratory diagnostics of infectious and invasive diseases  Diseases of horses  Diseases of productive animals  Diseases of small pets  Bee diseases and entomophages  Fish pathology and aquaculture  Diseases of exotic animals  Dermatology  Cardiology  Endocrinology  Nephrology  Veterinary  Ophthalmology  Animal Dentistry</p>
PC -24	Ability and willingness to promote veterinary knowledge, including in the field of prevention of animal diseases	<p>Physiology and ethology of animals  Breeding with the basics of private animal husbandry  Animal health and welfare  Feeding animals with the basics of feed production  Pathological physiology</p>	<p>Toxicology  Obstetrics, gynecology and andrology  Internal non-infectious diseases  General surgery  Private Veterinary surgery  Parasitology and invasive diseases  Epizootology and infectious diseases  Fundamentals of rhetoric and</p>

		<p> communication  Introduction to the specialty  General and veterinary ecology  Veterinary sanitation  Veterinary deontology  Economics and organization of agricultural production  Medicinal and poisonous plants  Forage plants  Zoopsychology  Animal Health  Diseases of horses  Diseases of productive animals  Diseases of small pets  Diseases of small pets  Bee diseases and entomophages  Fish pathology and aquaculture  Diseases of exotic animals  Dermatology  Cardiology  Endocrinology  Nephrology  Reconstructive and reconstructive surgery  Veterinary  Ophthalmology  Animal Dentistry  Foreign language for special purposes  Russian for special purposes  Foreign language.  Translation of special texts  Russian language.  Translation of special texts  Foreign language.  Professional communications </p>
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			Russian language. Professional communications
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#### 4. COURSE WORKLOAD AND TRAINING ACTIVITIES

Course workload of the discipline "**Pathological anatomy**" is 8 credits.

*Table 4.1. Types of academic activities during the period of the HE program mastering for **full-time** study*

Types of academic activities		HOURS	Semesters				
			5	6	-	-	
Contact academic hours		144	72	72	-	-	
including							
Lectures		36	18	18	-	-	
Lab work		108	54	54	-	-	
Seminars (workshops/tutorials)		-	-	-	-	-	
Self-study		124	26	98	-	-	
Evaluation and assessment (exam/pass/fail grading)		20	10	10	-	-	
<b>Course workload</b>		Academic hour	<b>288</b>	<b>108</b>	<b>180</b>	-	-
		Credit unit	<b>8</b>	<b>3</b>	<b>5</b>	-	-

*Table 4.2. Types of academic activities during the period of the HE program mastering for **part-time** study*

Types of academic activities		HOURS	Semesters				
			5	6	-	-	
Contact academic hours		72	36	36	-	-	
including							
Lectures		36	18	18	-	-	
Lab work		36	18	18	-	-	
Seminars (workshops/tutorials)		-	-	-	-	-	
Self-study		192	62	130	-	-	
Evaluation and assessment (exam/pass/fail grading)		24	10	14	-	-	
<b>Course workload</b>		Academic hour	<b>288</b>	<b>108</b>	<b>180</b>	-	-
		Credit unit	<b>8</b>	<b>3</b>	<b>5</b>	-	-

#### 5. CONTENT OF THE DISCIPLINE

*Table 5.1 Content of the discipline (module) by type of academic work*

<b>Name of the discipline section</b>	<b>Content of the section (topics)</b>	<b>Types of academic activities</b>
Section 1. General pathological anatomy	Topic 1.1. Thanatology.	Lectures, Lab work.
	Topic 1.2. Pathohisto technique.	Lectures, Lab work.
	Topic 1.3. Alterations.	Lectures, Lab work.
	Topic 1.4. Disorders of blood and lymph circulation.	Lectures, Lab work.
	Topic 1.5. Inflammation Immunomorphology, immunopathology.	Lectures, Lab work.
	Topic 1.6. Adaptive and compensatory reactions.	Lectures, Lab work.
Section 2. Private pathological anatomy	Topic 2.1. Infectious pathology. Pathomorphology of bacterial infections.	Lectures, Lab work.
	Topic 2.2. Pathomorphology of viral infections.	Lectures, Lab work.
	Topic 2.3. Pathomorphology of fungal diseases.	Lectures, Lab work.
	Topic 2.4. Pathomorphology of invasive diseases.	Lectures, Lab work.
	Topic 2.5. Adaptive and compensatory reactions of tumor growth.	Lectures, Lab work.
	Topic 2.6. Pathomorphology of infectious diseases.	Lectures, Lab work.

## **6. CLASSROOM INFRASTRUCTURE AND TECHNOLOGY SUPPORT REQUIREMENTS**

*Table 6.1. Material and technical support of the discipline*

<b><i>Classroom for Academic Activity Type</i></b>	<b><i>Equipping the classroom</i></b>	<b>Specialized educational/laboratory equipment, software and materials for the development of the discipline (if necessary)</b>
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Lecture	An auditorium for conducting lecture-type classes, equipped with a set of specialized furniture; a board (screen) and technical means of multimedia presentations.	- <i>Information stands.</i> - <i>Wet anatomical preparations.</i> - <i>Micro-preparations.</i> - <i>Biological microscopes.</i> - <i>Digital camera for the microscope.</i>
Laboratory	An auditorium for laboratory work, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment.	- <i>Information stands.</i> - <i>Wet anatomical preparations.</i> - <i>Micro-preparations.</i> - <i>Biological microscopes.</i> - <i>Digital camera for the microscope.</i>
Self-studies	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to an electronic information and educational environment.	-

## 7. RECOMMENDED SOURCES FOR COURSE STUDIES

### *Main reading:*

1. Pathological physiology and pathological anatomy of animals : textbook / A.V. Zharov, L.N. Adamushkina, T.V. Loseva, A.P. Strelnikov ; Edited by A.V. Zharov. - 4th ed., revised. - St. Petersburg : Publishing House "Lan", 2018. - 416 p.

Pathological anatomy of animals : textbook / A.V. Zharov. - 2nd ed., reprint. and additional - St. Petersburg : Publishing house "Lan", 2013. - 608 p.

### *Additional Reading:*

1. Anatomical and physiological features of pigs and pathoanatomic autopsy of their corpses: textbook / G.V. Lukashik, V.G. Sokolov, N.V. Saenko. - St. Petersburg : Publishing House "Lan", 2016. - 100 p.
2. Workshop on pathological anatomy of animals: textbook / V. A. Salimov. - 2nd ed., reprint. and additional - St. Petersburg : Publishing house "Lan", 2013. -352 p.

### *Resources of the Internet information and telecommunication network:*

1. Electronic library system of RUDN and third-party Electronic library systems to which university students have access on the basis of concluded contracts:  
- Electronic library system of RUDN - ELS RUDN <http://lib.rudn.ru/MegaPro/Web>  
- ELS "University Library online" <http://www.biblioclub.ru>

- ELS Yurayt <http://www.biblio-online.ru>
- ELS "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru)
- ELS "Lan" <http://eZlanbook.com/>
- ELS "Trinity Bridge" <http://www.trmost.com/>

**2. Databases and search engines:**

- electronic fund of legal and regulatory and technical documentation <http://docs.cntd.ru/>
- search engine Yandex <https://www.yandex.ru/>
- search engine Google <https://www.google.ru/>
- abstract database SCOPUS <http://www.elsevierscience.ru/products/scopus/>

Educational and methodological materials for independent work of students during the development of the discipline/ module\*:

1. A course of lectures on the discipline "**Pathological anatomy**".
2. Laboratory workshop on the discipline "**Pathological anatomy**".

\* - All educational and methodological materials for independent work of students are placed in accordance with the current procedure on the discipline page in the **Telecommunication educational and Information System!**

## 8. MID-TERM ASSESSMENT

Evaluation materials and a point-rating system\* for assessing the level of competence formation (part of competencies) based on the results of mastering the discipline "**Pathological anatomy**" are presented in the Appendix to this Work Program of the discipline.

\* - Assessment Materials and a Point Rating System are formed based on the requirements of the relevant local regulatory act of the RUDN.

### DEVELOPER:

Associate Professor of the Department of Veterinary  
Medicine

\_\_\_\_\_  
Position, Basic curriculum

Signature

Kulikov E. V.

\_\_\_\_\_  
Full name.

### HEAD OF THE DEPARTMENT:

Department of Veterinary Medicine

\_\_\_\_\_  
Name Basic Curriculum

Signature

Vatnikov Yu.A.

\_\_\_\_\_  
Full name.

### HEAD OF THE HIGHER EDUCATION PROGRAM:

Director of the Department of Veterinary Medicine

\_\_\_\_\_  
Position, Basic curriculum

Signature

Vatnikov Yu.A.

\_\_\_\_\_  
Full name