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### 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.	<ul><li>GPC-2.1 Has knowledge of the influence of natural, socio-economic, genetic and economic factors on the animal body.</li><li>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.</li></ul>
		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.	<ul> <li>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.</li> <li>GPC-4.2 He knows the methods of solving problems using modern equipment.</li> <li>GPC-4.3 He is ready to use modern methodology in the development and conduct of experimental research.</li> <li>GPC-4.4 Uses modern professional methodology in interpreting research</li> </ul>		
GPC -5	The ability to draw up special documentation, analyze the results of professional activity and submit accounting documents using specialized databases.	results. 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.	<ul> <li>GPC-6.1 Has knowledge in the field of etiology and pathogenesis of animal diseases of different species.</li> <li>GPC-6.2 Has the skills to diagnose non-infectious, infectious and invasive diseases, identify pathogens of infectious and invasive diseases in animals.</li> <li>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.</li> </ul>		
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 antiepizootic 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-	studies of animals in accordance with the
	infectious animal diseases	plan of antiepizootic 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	PC-4.1 Able to conduct additional animal studies using laboratory methods to clarify the diagnosis.
	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	<ul><li>PC-11.1 Able to develop a surgical operation plan;</li><li>PC-11.2 He is able to choose and justify the optimal variant of anesthesia of the patient during surgery and in the postenerative period.</li></ul>
PC -12	The ability to perform surgical intervention in the body of animals in the treatment of various diseases, castration, sterilization, for cosmetic purposes.	<ul> <li>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.</li> <li>PC-12.2 He is able to prepare the operating team for surgical intervention, taking into account the requirements of asepsis and antiseptics.</li> </ul>
		<ul><li>PC-12.3 He is able to prepare the patient for surgical intervention, taking into account the requirements of asepsis and antiseptics.</li><li>PC-12.4 He is able to assist the operating surgeon during surgical interventions.</li></ul>
		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	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
	effectiveness of treatment	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	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
	the medical examination	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	<ul> <li>PC-19.1 He is able to conduct a general examination of animal corpses before autopsy</li> <li>PC-19.2 He is able to perform autopsy of animal corpses using special tools and compliance with safety requirements</li> <li>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</li> <li>PC -19.4 He is able to formalize the results of a postmortem diagnostic examination of an animal in the autopsy protocol</li> </ul>
PC -24	Ability and willingness to promote veterinary knowledge, including in the field of prevention of animal diseases.	<ul> <li>PC -24.1 He is able to set goals in the field of veterinary knowledge promotion, plan the strategy and tactics of upcoming events.</li> <li>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.</li> <li>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.</li> </ul>

## **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**".

Competence	Competence	Previous	Subsequent Disciplines
code	-	Disciplines	(Modules)
		(Modules)	
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

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

		Pathological	examination and
		physiology	autopsy of animals
		Veterinary	Immunology
		Radiobiology	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	Inorganic and	Operative surgery with
	methods of solving	analytical chemistry	topographic anatomy
	problems using modern	Organic Chemistry	Instrumental diagnostic
	equipment in the	Biological physics	methods
	development of new	Computer science	Toxicology
	technologies in	Physical and	Obstetrics, gynecology
	professional activity and	colloidal chemistry	and andrology
	to use modern	Cytology, histology	Internal non-infectious
	professional	and embryology	diseases
	methodology for	Biological	General surgery
	conducting experimental	chemistry	Private Veterinary
	research and interpreting	Veterinary	surgery
	their results.	microbiology and	Parasitology and
		mycology	invasive diseases
		Virology and	Epizootology and
		biotechnology	infectious diseases
		Physiology and	Mathematics
		ethology of animals	Immunology

		Breeding with the	Veterinary sanitation
		basics of private	Technology of
		animal husbandry	processing livestock
		Pathological	products
		physiology	Medicinal and
		Veterinary	poisonous plants
		Radiobiology	Forage plants
		Clinical diagnosis	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
GPC -5	The ability to draw up	Veterinary genetics	Operative surgery with
	special documentation,	Computer science	topographic anatomy
	analyze the results of	Breeding with the	Instrumental diagnostic
	professional activity and	basics of private	methods
	submit accounting	animal husbandry	Obstetrics, gynecology
	documents using	Clinical diagnosis	and andrology
	specialized databases.		Internal non-infectious
			diseases

			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 and
			Dermatalagy
			Dermatology
			Cardiology
			Endocrinology
			Nephrology
GPC -6	The ability to analyze,	Biology with the	Instrumental diagnostic
	identify and assess the	basics of ecology	methods
	risk of the risk of the	Life safety	Toxicology
	occurrence and spread of	Veterinary	Obstetrics, gynecology
	diseases.	microbiology and	and andrology
		mycology	Internal non-infectious
		Virology and	diseases
		biotechnology	General surgery
		Animal health and	Private Veterinary
		welfare	surgery
		Feeding animals	Parasitology and
		with the basics of	invasive diseases
		feed production	Epizootology and
		Veterinary	infectious diseases
		Radiobiology	Veteringry and conitary
	l	Radioolology	v cici mai y and Sannai y

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		Clinical diagnosis	examination
			Organization of
			veterinary business
			Forensic veterinary
			examination and
			autopsy of animals
			Introduction to the
			specialty
			General and veterinary
			ecology
			Votorinomy constation
			Technology of
			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
			entomonhages
			Fish pathology and
			a supporting and
			Digagage of evotio
			animala
			Anestnesiology,
			intensive care and
			intensive care
			veterinary
			Ophthalmology
			Animal Dentistry
PC -2	The ability to conduct a	Animal anatomy	Obstetrics, gynecology
	general clinical study of	Physiology and	and andrology
	animals in order to	ethology of animals	Bee diseases and
	establish a preliminary	Pathological	entomophages
	diagnosis and determine	physiology	Fish pathology and
	the further research	Clinical diagnosis	aquaculture

	program, as well as in		Anesthesiology,
	accordance with the plan		intensive care and
	of antiepizootic		intensive care
	measures, the plan of		
	prevention of non-		
	infectious animal		
	diseases		
PC -3	Ability to develop	Animal Anatomy	Instrumental diagnostic
10-5	animal research	Organic Chemistry	methods
	programs using special	Biological physics	Toxicology
	(instrumental) and	Diological physics Physical and	Obstetrics gynecology
	laboratory methods	colloidal chemistry	and andrology
	habbilatory methods	Biological	Internal non-infectious
		chemistry	diseases
		Veterinary	General surgery
		microbiology and	Drivate Veterinary
		mycology	surgery
		Virology	Parasitology and
		hiotechnology	invasive diseases
		Physiology and	Epizootology and
		ethology of animals	infactious diseases
		Pathological	Immunology
		ratiological	Veterinary deontology
		Clinical diagnosis	Clinical laboratory
		Clinical diagnosis	diagnostias
			Laboratory diagnostics
			cf infactious and
			of infectious and
			Matarina my and
			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

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			Endocrinology
			Nephrology
			Reconstructive and
			reconstructive surgery
			Veterinary
			Ophthalmology
			Animal Dentistry
PC -A	The ability to conduct	Animal anatomy	Instrumental diagnostic
10-4	clinical studies of	Riological physics	methods
	enimela using gradial	Cutological physics	Obstatrias auragalagu
	(instance at 1)	Cytology, mistology	Obstetrics, gynecology
	(instrumental) and	and embryology	and andrology
	laboratory methods to	Biological	Internal non-infectious
	clarify the diagnosis	chemistry	diseases
		Veterinary	General surgery
		microbiology and	Private Veterinary
		mycology	surgery
		Virology and	Parasitology and
		biotechnology	invasive diseases
		Physiology and	Epizootology and
		ethology of animals	infectious diseases
		Pathological	Clinical laboratory
		physiology	diagnostics
		Clinical diagnosis	Laboratory diagnostics
		Chinear alagnosis	of infectious and
			invasive diseases
			Discoses of horses
			Diseases of norses
			Diseases of productive
			Disasson of small note
			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	Veterinary genetics	Toxicology
10-5	diagnosis based on the	Cytology histology	Obstetrics avnecology
	analysis of anomnosis	and embryology	and andrology
	data ganaral gradial	Dhygiology and	Internal non infactious
	(instrumental)	ritysiology and	diagonage
	(instrumental) and	einology of animals	uiseases
	laboratory research	Breeding with the	General surgery

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

			Nephrology
			Reconstructive and
			Veterinery
			veterinary
			Ophthalmology
			Animal Dentistry
PC -11	Ability to develop a	Animal anatomy	Operative surgery with
	surgical operation plan,	Veterinary	topographic anatomy
	including the choice of	microbiology and	Obstetrics, gynecology
	analgesia method	mycology	and andrology
		Physiology and	General surgery
		ethology of animals	Private Veterinary
		Pathological	surgery
		physiology	Anesthesiology.
		Veterinary	intensive care and
		Pharmacology	intensive care
		1 marmaeorogy	Dermatology
			Cardiology
			Endocrinology
			Nephrology
			Rephrology Reconstructive and
DC 10			reconstructive surgery
PC -12	The ability to perform	-	Operative surgery with
	surgical intervention in		topographic anatomy
	the body of animals in		Obstetrics, gynecology
	the treatment of various		and andrology
	diseases, castration,		Reconstructive and
	sterilization, for		reconstructive surgery
	cosmetic purposes		
PC -14	The ability to conduct	Cytology, histology	Instrumental diagnostic
	repeated examinations	and embryology	methods
	and studies of animals to	Physiology and	Toxicology
	assess the effectiveness	ethology of animals	Obstetrics, gynecology
	and safety of the	Pathological	and andrology
	prescribed treatment and	physiology	Internal non-infectious
	adjust the treatment plan	Veterinary	diseases
	of animals (if necessary)	Pharmacology	General surgery
	based on the results of	Clinical diagnosis	Private Veterinary
	the evaluation of the		surgery
	effectiveness of		Parasitology and
	treatment		invasive diseases
			Epizootology and
			infectious diseases
			Clinical laboratory
			diagnostics
			Diseases of horses
			Diseases of productive
			animala
			ammais

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

	diseases, causes of death		General surgery
			Private Veterinary
			surgery
			Parasitology and
			invasive diseases
			Epizootology and
			infectious diseases
			Veterinary and sanitary
			examination
			Examination Economic victoring
			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
			Digagan of evotio
			animais Democrate le com
			Dermatology
			Cardiology
			Endocrinology
			Nephrology
			Veterinary
			Ophthalmology
			Animal Dentistry
PC -24	Ability and willingness	Physiology and	Toxicology
	to promote veterinary	ethology of animals	Obstetrics, gynecology
	knowledge, including in	Breeding with the	and andrology
	the field of prevention of	basics of private	Internal non-infectious
	animal diseases	animal husbandry	diseases
		Animal health and	General surgerv
		welfare	Private Veterinary
		Feeding animals	surgery
		with the basics of	Deresiteleasy and
		food production	invosivo disesses
		Dette 1 and 1	
			Epizootology and
		physiology	intectious diseases
			Fundamentals of
			rhetoric and

	aammuniaation
	Introduction to the
	specialty
	General and veterinary
	ecology
	Veterinary sanitation
	Veterinary deontology
	Economics and
	argonization of
	organization of
	agricultural production
	Medicinal and
	poisonous plants
	Forage plants
	Zoopsychology
	Animal Health
	Diseases of horses
	Diseases of productive
	Diseases of small pets
	Diseases of small pets
	Bee diseases and
	entomophages
	Fish pathology and
	aquaculture
	Diseases of exotic
	animals
	Dermatology
	Cardiology
	Endoarinology
	Nachralagy
	Nephrology
	Reconstructive and
	reconstructive surgery
	Veterinary
	Ophthalmology
	Animal Dentistry
	Foreign language for
	special purposes
	Russian for special
	purposes
	Foreign language
	Translation of special
	tansiation of special
	Kussian language.
	Translation of special
	texts
	Foreign language.
	Professional
	communications

	Russian language.
	Professional
	communications

#### 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		Seme	sters	
			5	6	-	-
Contact academic hours		144	72	72	I	I
including						
Lectures		36	18	18	-	-
Lab work		108	54	54	I	I
Seminars (workshops/tutorials)		-	-	-	I	I
Self-study		124	26	98	I	I
Evaluation and assessment (exa	am/pass/fail	20	10	10	-	-
grading)						
	Academic	288	108	180	-	-
Course workload hour						
Course workioau	Credit	8	3	5	-	-
	unit					

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

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

#### **5. CONTENT OF THE DISCIPLINE**

Name of the discipline section	Content of the section (topics)	Types of academic activities
Section 1. General	Topic 1.1. Thanatology.	Lectures, Lab
	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.

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

# 6. CLASSROOM INFRASTRUCTURE AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Material and technical support of the discipline

Lecture	An auditorium for conducting lecture-type classes, equipped with a set of specialized furniture; a board (screen) and technical means of multimedia presentations.	<ul> <li>Information stands.</li> <li>Wet anatomical preparations.</li> <li>Micro-preparations.</li> <li>Biological microscopes.</li> <li>Digital camera for the microscope.</li> </ul>
Laboratory	An auditorium for laboratory work, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment.	<ul> <li>Information stands.</li> <li>Wet anatomical preparations.</li> <li>Micro-preparations.</li> <li>Biological microscopes.</li> <li>Digital camera for the microscope.</li> </ul>
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:

 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., erased. - 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"<u>http://www.biblioclub.ru</u>

- ELS Yurayt http://www.biblio-online.ru

- ELS "Student Consultant"<u>www.studentlibrary.ru</u>
- ELS "Lan"<u>http://eZlanbook.com/</u>
- ELS "Trinity Bridge"<u>http://www.trmost.com/</u>
- 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 <u>Telecommunication educational and Information System!</u>

#### 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

Signature

Kulikov E. V. Full name.

**HEAD OF THE DEPARTMENT:** 

Department of Veterinary Medicine

Vatnikov Yu.A.

#### **HEAD OF THE HIGHER EDUCATION PROGRAM:**

Director of the Department of Veterinary Medicine

Position, Basic curriculum

Signature

Vatnikov Yu.A.