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**Federal State Autonomous Educational Institution for Higher Education  
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA  
(RUDN University)  
Agrarian and Technological Institution**

## **PRACTICE SYLLABUS**

### **Pharmacology, clinical diagnostics, pathological anatomy Educational**

**Recommended by the Methodological Council for the Education Field for Higher Education Field/ Specialization:**

**36.05.01. Veterinary**

**Practical training of students is carried out as part of the implementation of the main professional educational program of higher education (the Higher Education Program):**

**2022 year**

## 1. AIM OF THE PRACTICE

The purpose of the training practice in "**Pharmacology**" is to consolidate the theoretical knowledge, practical skills and abilities gained in the study of the course "Pharmacology".

The purpose of the training practice in "**Clinical Diagnostics**" is to consolidate theoretical knowledge and acquire the skills of clinical and laboratory research of animals in order to recognize the disease and make an accurate diagnosis.

The purpose of the training practice in "**Pathological Anatomy**" is to gain experience in assessing pathoanatomical changes in the organs of forcedly killed and dead animals to establish a diagnosis and conclude on the causes of death.

## 2. REQUIREMENTS FOR LEARNING OUTCOMES OF THE PRACTICE

Conducting "**Pharmacology, clinical diagnostics, pathological anatomy**" is aimed at developing students' competencies (parts of competencies):

*Table 2.1. The list of competencies formed by students during practice (learning outcomes based on the results of practice)*

Code	Competence	Competence achievement indicators (within this practice)
UC-1	The ability to carry out a critical analysis of problem situations based on a systematic approach, to develop an action strategy	UC-1.1 Analyzes the task, highlighting its basic components
		UC-1.2 Determines and ranks the information required to solve the task
		UC-1.3 Searches for information to solve the task for various types of requests
		UC-1.4 Offers options for solving the problem, analyzes the possible consequences of their use
		UC-1.5 Analyzes ways to solve problems of an ideological, moral and personal nature based on the use of basic philosophical ideas and categories in their historical development and socio-cultural context
UC-2	Ability to manage a project at all stages of its life cycle	UC-2.1 Formulates a problem, the solution of which is directly related to the achievement of the project goal
		UC-2.2 Determines the links between the tasks set and the expected results of their solution
		UC-2.3 Within the framework of the tasks set, determines the available resources and restrictions, the current legal norms
		UC-2.4 Analyzes the schedule for the implementation of the project as a whole and chooses the best way to solve the tasks, based on the current legal regulations and available resources and restrictions
		UC-2.5 Controls the progress of the project, adjusts the schedule in accordance with the results of control
UC-3		UC-3.1 Determines his role in the team, based on the strategy of cooperation to achieve the goal

	Ability to organize and manage the work of a team, developing a team strategy to achieve the goal	<p>UC-3.2 Formulates and takes into account in its activities the behavioral characteristics of groups of people identified depending on the goal</p> <p>UC-3.3 Analyzes the possible consequences of personal actions and plans their actions to achieve a given result</p> <p>MC-3.4 Sharing information, knowledge and experience with team members</p> <p>UC-3.5 Argues his point of view regarding the use of the ideas of other team members to achieve the goal</p> <p>UC-3.6 Participates in team work to complete assignments</p>
UC-4	The ability to communicate in interpersonal and intercultural interaction in Russian as a foreign and foreign language(s) based on the possession of interrelated and interdependent types of reproductive and productive foreign language speech activities, such as listening, speaking, reading, writing and translating in everyday life , sociocultural, educational, professional, official, business and scientific spheres of communication	<p>UC-4.1 Chooses the style of business communication, depending on the language of communication, the purpose and conditions of the partnership</p> <p>UC-4.2 Adapts speech, communication style and body language to interaction situations</p> <p>UC-4.3 Searches for the necessary information to solve standard communication tasks in Russian and foreign languages</p> <p>UC-4.4 Performs translation of professional texts from a foreign language into Russian and vice versa</p> <p>UC-4.5 Conducts business correspondence in Russian and foreign languages, taking into account the peculiarities of the style of official and unofficial letters and socio-cultural differences in the format of correspondence</p> <p>UC-4.6 Uses dialogue for cooperation in academic communication of communication, taking into account the personality of the interlocutors, their communicative-speech strategy and tactics, the degree of formality of the situation</p> <p>UC-4.7 Forms and argues own assessment of the main ideas of the participants in the dialogue (discussion) in accordance with the needs of joint activities</p>
UC-5	Ability to analyze and take into account the diversity of cultures in the process of intercultural interaction	<p>UC-5.1 Interprets the history of Russia in the context of world historical development</p> <p>UC-5.2 Finds and uses information about the cultural characteristics and traditions of various social groups in social and professional communication</p> <p>UC-5.3 Takes into account, in social and professional communication on a given topic, the historical heritage and socio-cultural traditions of various social groups, ethnic groups and confessions, including world religions, philosophical and ethical teachings</p> <p>UC-5.4 Collects information on a given topic, taking into account the ethnic groups and confessions that are most widely represented at the points of the study</p>

		UC-5.5 Substantiates the features of project and team activities with representatives of other ethnic groups and (or) confessions
		UC-5.6 Adheres to the principles of non-discriminatory interaction in personal and mass communication in order to fulfill professional tasks and strengthen social integration
UC-6	The ability to determine and implement the priorities of one's own activity and ways to improve it based on self-assessment and lifelong learning	UC-6.1 Controls the amount of time spent on specific activities
		UC-6.2 Develops tools and methods for time management when performing specific tasks, projects, goals
		UC-6.3 Analyzes its resources and their limits (personal, situational, temporary, etc.) for the successful completion of the task
		UC-6.4 Finds and uses sources of additional information to increase the level of general and professional knowledge
		UC-6.5 Analyzes the main opportunities and tools of lifelong education in relation to their own interests and needs, taking into account the conditions, means, personal opportunities, stages of career growth, time perspective for the development of activities and labor market requirements
		UC-6.6 Defines the tasks of self-development, goals and priorities of professional growth
		UC-6.7 Distributes tasks into long-, medium- and short-term ones with justification of relevance and analysis of resources for their implementation
UC-8	The ability to create and maintain safe living conditions in everyday life and in professional activities to preserve the natural environment, ensure the sustainable development of society, including in the event of a threat and the occurrence of emergencies and military conflicts	UC-8.1 Analyzes the factors of harmful influence on the life of the elements of the environment (technical means, technological processes, materials, buildings and structures, natural and social phenomena)
		UC-8.2 Identifies hazardous and harmful factors within the framework of the task being performed
		UC-8.3 Identifies and eliminates problems associated with safety violations in the workplace
		UC-8.4 Explains measures to prevent emergency situations
		UC-8.5 Clarifies the rules of conduct in the event of emergencies of natural and man-made origin, as well as in the event of military conflicts
		UC-8.6 Provides first aid, participates in recovery activities
UC-12	The ability to search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in	UC-12.1 Searches for the necessary sources of information and data, perceives, analyzes, memorizes and transmits information using digital means, as well as using algorithms when working with data received from various sources in order to effectively use the information received to solve problems

	order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data.	UC-12.2 Evaluates information, its reliability, builds logical conclusions based on incoming information and data.
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 species characteristics
		GPC-1.2 Capable of predicting the expected violations of the biological status in case of suspected development of diseases
		GPC-1.3 Is able to determine the main indicators of the activity of individual body systems and draw conclusions about the presence of deviations from the normative values
		GPC-1.4 Skilled in taking samples of biological fluids and tissues for research, performing laboratory tests, interpreting research results.
GPC-2	The ability to interpret and evaluate in professional activities the impact on the physiological state of the animal organism of natural, socio-economic, genetic and economic factors.	GPC-2.1 Has knowledge of the impact of natural, socio-economic, genetic and economic factors on the animal body
		GPC-2.2 Able to establish the presence and reliability of causal relationships between the impact of individual etiological factors on the animal's body and the development of diseases
		GPC-2.3 Owns methods of preventive and therapeutic correction of the impact of adverse environmental factors that can cause a deterioration in animal health
GPC-4	The ability to use in professional activities methods of solving problems using modern equipment in the development of new technologies and use modern professional methodology to conduct experimental studies and interpret their results.	GPC-4.1 Owns the conceptual and methodological apparatus of the basic natural sciences at a level sufficient for full-fledged professional activity at the modern level
		GPC-4.2 Owns methods for solving problems using modern equipment
		GPC-4.3 Ready to use modern methodology in the development and conduct of experimental studies
		GPC-4.4 Uses modern professional methodology when interpreting research results
GPC-5	The ability to draw up special documentation, analyze the results of professional activities and submit reporting documents using specialized databases.	GPC-5.1 Has the skills to search for the necessary forms of documentation on official websites and specialized databases
		GPC-5.2 Proficient in professional terminology and skills in filling out analytical and reporting documents of a professional nature
		GPC-5.3 Able to use specialized software for analyzing the results of professional activities and compiling reporting documentation
GPC-6	The ability to analyze, identify and carry out risk assessment of the risk of 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-contagious, infectious and parasitic diseases,

		identify pathogens of infectious and parasitic diseases in animals
		GPC-6.3 Knows the patterns of occurrence and spread of diseases in animal populations, factors predisposing to diseases and causes of possible complications
GPC-7	Able to understand the principles of operation of modern information technologies and use them to solve problems of professional activity.	GPC-7.1 Understands the principles of operation of modern computer equipment and telecommunications and knows how to use them to solve professional problems
		GPC-7.2 Uses modern special software and specialized databases to solve professional problems and perform job duties
		GPC-7.3 Has the skills to work on modern medical diagnostic and treatment equipment with software
		GPC-7.4 Uses specialized databases to solve professional problems in the field of diagnostics and treatment of animals of various species
		GPC-7.5 Uses geographic information systems and software systems in the collection and analysis of information related to the assessment of the spread of infectious diseases, epizootic situations, planning and evaluating the effectiveness of anti-epizootic measures
PC-1	The ability to collect an anamnesis of the life and disease of animals to identify the causes of diseases and their nature	PC-1.1 Able to collect an anamnesis of the animal's life and reflect this in the relevant service documentation
		PC-1.2 Able to collect anamnesis of the animal's disease and reflect it in the patient's medical history
		PC-1.3 Able to identify possible causes of disease in an animal, factors predisposing to the disease and concomitant conditions that affect the nature of the course of the disease and use this information when making a diagnosis
PC-2	Ability to conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine a further research program, as well as in accordance with the plan of anti-epizootic measures, the plan for the prevention of non-communicable animal diseases	PC-2.1 Able to conduct a general clinical study of animals of different species in order to establish a preliminary diagnosis and determine a further research program
		PC-2.2 Able to conduct mass clinical trials of animals in accordance with the plan of anti-epizootic measures, the plan for the prevention of non-communicable animal diseases
PC-3	Ability to develop animal research programs using special (instrumental) and laboratory methods	PC-3.1 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 identified pathology or control the course of the disease and the effectiveness of the prescribed treatment
		PC-3.2 Able to develop mass comprehensive animal research programs (medical examination

		programs) of animals, taking into account their type and purpose, both general and special
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 Able to diagnose patients of various types based on the analysis of anamnesis data, general, special (instrumental) and laboratory research methods
		PC-5.2 Able to predict the risks of diseases on the basis of anamnestic data, the results of general, special (instrumental) and laboratory studies
PC-6	Ability to develop a treatment plan for animals based on the established diagnosis and individual characteristics of animals	PC-6.1 Able to develop a treatment plan for animals based on the established diagnosis and individual characteristics of animals
		PC-6.2 Able to develop recommendations for therapeutic and prophylactic manipulations to prevent diseases, the high probability of which was revealed during the study of the patient
		PC-6.3 Able to develop recommendations for the implementation of preventive and therapeutic and therapeutic measures based on the results of animal examinations conducted as part of medical examination
PC-7	The ability to select the necessary drugs of a chemical and biological nature for the treatment of animals, taking into account their cumulative pharmacological effect on the body	PC-7.1 Able to select drugs of a chemical and biological nature necessary for the treatment of animals, guided by the principles of evidence-based medicine, taking into account their cumulative pharmacological effects on the body
		PC-7.2 Able to justify the prescription of a drug in a specific clinical case or the impossibility of using this drug in the situation under consideration
		PC-7.3 Able to calculate the dose, frequency and duration of the course of drug administration to the patient, taking into account the form of release and the characteristics of the administration of the drug to the patient
		PC-7.4 Able to take into account drug interactions when prescribing a course of treatment to an animal already receiving drugs and dietary supplements due to the presence of previously identified diseases
		PC-7.5 Able to take into account economic, species and age characteristics, as well as the results of laboratory tests of the patient when choosing drugs for the treatment of the patient
PC-8	Ability to choose methods of non-drug therapy, including physiotherapy methods for the treatment of animals	PC-8.1 Able to choose and justify his choice of methods of non-drug therapy, including physiotherapy methods, for the treatment of animals
		PC-8.2 Able to assess the effectiveness of the selected method in treating the patient and, if necessary, adjust the treatment method or change the selected method to another
PC-9	The ability to conduct medical, including physiotherapy procedures	PC-9.1 Able to carry out medical, including physiotherapy, procedures using special equipment in compliance with safety rules

	using special equipment in compliance with safety rules	PC-9.2 Able to take into account the species, age and individual characteristics of animals undergoing treatment using special equipment, to choose acceptable methods of fixing the patient during the procedure, the conditions for the procedures and their duration
PC-13	Ability to develop recommendations for special feeding of sick animals for therapeutic purposes	PC-13.1 Able to justify the appointment of special feeding for an animal with a therapeutic purpose for various diseases
		PC-13.2 Able to recommend the approximate composition of therapeutic diets, the desired ratio of nutrients, the presence of special additives and components that enhance the therapeutic effect of the diet
		PC-13.3 Able to use special programs and databases for the selection of industrial therapeutic diets and dietary supplements, as well as for the preparation of individual therapeutic diets for animals of various species
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 for animals (if necessary) based on the results of evaluating the effectiveness of treatment	PC-14.1 Able to develop a plan for repeated studies necessary and sufficient to assess predicted changes in the patient's health status
		PC-14.2 Able to conduct a repeated clinical examination, taking into account the specifics of diseases previously diagnosed in a patient
		PC-14.3 Able to conduct the necessary repeated instrumental and laboratory studies
		PC-14.4 Able to analyze the identified changes, evaluate the effectiveness of the treatment and, if necessary, correct the prescribed course of treatment.
PC-15	Ability to organize prophylactic immunizations (vaccinations), therapeutic and prophylactic treatment of animals in accordance with the plan of anti-epizootic measures	PC-15.1 Able to draw up individual and group plans for preventive immunizations (vaccinations) taking into account the epizootic situation in the territory where the animals are staying, the plan of anti-epizootic measures, as well as state and regional veterinary and sanitary rules and requirements
		PC-15.2 Able to organize therapeutic and prophylactic treatment of animals in accordance with the plan of anti-epizootic measures, and also, if necessary, taking into account the real epizootic situation in the places of stay of animals, incl. in the conditions of agricultural production
PC-16	Ability to organize organizational, technical, zootechnical and veterinary measures aimed at the prevention of non-communicable diseases in accordance with the plan for the prevention of non-communicable animal diseases	PC-16.1 Able to assess the impact of the conditions of keeping and feeding animals on their health status as part of the implementation of action plans for the prevention of animal diseases
		PC-16.2 Able to carry out veterinary quality control and procurement of animal feed in order to ensure their veterinary and sanitary safety as part of the implementation of action plans for the prevention of animal diseases



		PC-16.3 Able to detect deviations from the plan of terms, types, quality of measures to prevent the emergence of non-infectious animals
		PC-16.4 Take corrective measures to implement measures to prevent the occurrence of non-communicable animal diseases based on the results of control
		PC-16.5 Conduct conversations, lectures, seminars for employees of the organization in order to explain the principles of work on the prevention of animal diseases
PC-17	Ability to organize disinfection and disinfection of livestock buildings to ensure veterinary and sanitary well-being in accordance with the plan of veterinary and sanitary measures	PC-17.1 Capable of collecting and analyzing information necessary for organizing and planning veterinary and sanitary measures
		PC-17.2 Is able to select the optimal equipment, consumables, and medicinal and disinfectant preparations necessary and safe enough for the conduct of veterinary and sanitary measures
		PC-17.3 Able to determine the procedure for disinfection, disinfection, deratization and other veterinary and sanitary measures, taking into account the peculiarities of keeping animals, the technical characteristics of the premises and the epizootic situation
		PC-17.4 Capable of monitoring the results of veterinary and sanitary measures
PC-18	The ability to draw up a plan for the medical examination of animals, taking into account their species and purpose, to conduct medical examinations, to develop recommendations for conducting preventive and therapeutic and therapeutic measures based on the results of an examination of animals conducted as part of the medical examination	PC-18.1 Able to draw up a plan for the medical examination of animals, general or specialized, taking into account their types and purpose
		PC-18.2 Able to organize and conduct medical examinations according to the plan
		PC-18.3 Able, based on the results of medical examination, to give recommendations on the implementation of preventive and therapeutic and therapeutic measures aimed at improving the health of a group of animals
PC-19	Ability to perform post-mortem diagnostic examination of animals in order to establish pathological processes, diseases, causes of death	PC-19.1 Able to conduct a general examination of animal corpses before autopsy
		PC-19.2 Capable of performing an autopsy of animal corpses using special tools and observing safety requirements
		PC-19.3 Able to establish the cause of death and pathoanatomical diagnosis in accordance with generally accepted criteria and classifications, lists of animal diseases
		PC-19.4 Able to document the results of the post-mortem diagnostic examination of the animal in the autopsy protocol

### 3. PLACE OF PRACTICE IN THE STRUCTURE OF THE HIGHER EDUCATION PROGRAM

"Pharmacology, clinical diagnostics, pathological anatomy" refers to the part formed by the participants in educational relations.

As part of the Higher Education Program, students also master disciplines and / or other practices that contribute to the achievement of the planned learning outcomes based on the results of passing the "Pharmacology, clinical diagnostics, pathological anatomy".

*Table 3.1. The list of components of the Higher Education Program that contribute to the achievement of the planned learning outcomes based on the results of the practice*

<b>Code</b>	<b>Competence</b>	<b>Previous disciplines/modules, practices</b>	<b>Subsequent disciplines/modules, practices</b>
UC-1	The ability to carry out a critical analysis of problem situations based on a systematic approach, to develop an action strategy	History Philosophy Maths Fundamentals of Economics and Management	Life safety Obstetrics, gynecology and andrology Internal non-communicable diseases general surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Veterinary and sanitary examination Organization of veterinary business Veterinary deontology Fundamentals of intellectual work Zoopsychology Organization of state veterinary supervision Career Management Space technologies in the service of the agro-industrial complex Reconstructive surgery
UC-2	Ability to manage a project at all stages of its life cycle	Philosophy Maths Introduction to the specialty Fundamentals of Economics and Management	Organization of veterinary business Veterinary deontology Economics and organization of agricultural production Fundamentals of intellectual work Psychology of personality and professional self-determination

			Veterinary and manufacturing laboratories with design basics Career Management Space technologies in the service of the agro-industrial complex
UC-3	Ability to organize and manage the work of a team, developing a team strategy to achieve the goal	Law science Maths Introduction to the specialty Fundamentals of Economics and Management Fundamentals of Rhetoric and Communication	Life safety Operative surgery with topographic anatomy Internal non-communicable diseases general surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Organization of veterinary business Veterinary sanitation Veterinary deontology Fundamentals of intellectual work Psychology of personality and professional self-determination Fundamentals of social and legal knowledge
UC-4	The ability to communicate in interpersonal and intercultural interaction in Russian as a foreign and foreign language(s) based on the possession of interrelated and interdependent types of reproductive and productive foreign language speech activities, such as listening, speaking, reading, writing and translating in everyday life, sociocultural, educational, professional, official, business and scientific spheres of communication	Latin language Fundamentals of Rhetoric and Communication Foreign language (Russian as a foreign language) Russian language	Veterinary deontology Fundamentals of intellectual work Communication workshop Foreign language for special purposes Russian language for special purposes Foreign language. Translation of special texts Russian language. Translation of special texts Foreign language. Professional communications Russian language. Professional communications
UC-5	Ability to analyze and take into account the diversity of cultures in the process of intercultural interaction	History Law science Philosophy	Veterinary deontology Fundamentals of intellectual work

		<p>Fundamentals of Rhetoric and Communication</p> <p>Foreign language</p> <p>Russian as a foreign language)</p>	<p>Psychology of personality and professional self-determination</p> <p>Communication workshop</p> <p>Foreign language for special purposes</p> <p>Russian language for special purposes</p> <p>Foreign language. Translation of special texts</p> <p>Russian language. Translation of special texts</p> <p>Foreign language. Professional communications</p> <p>Russian language. Professional communications</p>
UC-6	<p>The ability to determine and implement the priorities of one's own activity and ways to improve it based on self-assessment and lifelong learning</p>	<p>Philosophy</p> <p>Maths</p> <p>Introduction to the specialty</p>	<p>Internal non-communicable diseases</p> <p>general surgery</p> <p>Private Veterinary Surgery</p> <p>Epizootology and infectious diseases</p> <p>Organization of veterinary business</p> <p>Veterinary deontology</p> <p>Fundamentals of intellectual work</p> <p>Psychology of personality and professional self-determination</p> <p>Career Management</p> <p>Fundamentals of social and legal knowledge</p> <p>Reconstructive surgery</p>
UC-8	<p>The ability to create and maintain safe living conditions in everyday life and in professional activities to preserve the natural environment, ensure the sustainable development of society, including in the event of a threat and the occurrence of emergencies and military conflicts</p>	<p>History</p> <p>Inorganic and Analytical Chemistry</p> <p>Organic chemistry</p> <p>biological physics</p> <p>Physical and colloidal chemistry</p>	<p>Life safety</p> <p>biological chemistry</p> <p>Veterinary Microbiology and Mycology</p> <p>Virology and Biotechnology</p> <p>Veterinary radiobiology</p> <p>Parasitology and invasive diseases</p> <p>Epizootology and infectious diseases</p> <p>Organization of veterinary business</p> <p>General and veterinary ecology</p> <p>Veterinary sanitation</p>

			<p>Veterinary deontology  Laboratory diagnostics of infectious and parasitic diseases  Organization of state veterinary supervision</p>
UC-12	<p>The ability to search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data</p>	<p>Law science  Computer science  Philosophy  Maths</p>	<p>Life safety  Instrumental diagnostic methods  Organization of veterinary business  Forensic veterinary examination and autopsy of animals  Veterinary deontology  Medicinal and poisonous plants  Fundamentals of intellectual labor  Psychology of personality and professional self-determination  Clinical laboratory diagnostics  Laboratory diagnostics of infectious and parasitic diseases  Organization of state veterinary supervision  Veterinary and manufacturing laboratories with design basics  Biometrics in veterinary medicine  Fundamentals of social and legal knowledge  Space technologies in the service of the agro-industrial complex</p>
GPC-1	<p>The ability to determine the biological status and normative clinical indicators of organs and systems of the animal body.</p>	<p>Animal anatomy  Cytology, histology and embryology</p>	<p>Physiology and ethology of animals  pathological physiology  Clinical diagnostics  pathological anatomy  Instrumental diagnostic methods  Obstetrics, gynecology and andrology  Immunology  Clinical laboratory diagnostics</p>

			<p>Laboratory diagnostics of infectious and parasitic diseases</p> <p>Veterinary and manufacturing laboratories with design basics</p> <p>Diseases of bees and entomophages</p> <p>Fish pathology and aquaculture</p> <p>Anesthesiology, resuscitation and intensive care</p>
GPC-2	<p>The ability to interpret and evaluate in professional activities the impact on the physiological state of the animal organism of natural, socio-economic, genetic and economic factors.</p>	<p>Veterinary genetics</p> <p>Biology with the basics of ecology</p>	<p>Veterinary microbiology and mycology</p> <p>Virology and biotechnology</p> <p>Physiology and ethology of animals</p> <p>Breeding with the basics of private zootechnics</p> <p>Animal health and welfare</p> <p>pathological physiology</p> <p>Veterinary radiobiology</p> <p>pathological anatomy</p> <p>Instrumental diagnostic methods</p> <p>Toxicology</p> <p>Obstetrics, gynecology and andrology</p> <p>Internal non-communicable diseases</p> <p>general surgery</p> <p>Private Veterinary Surgery</p> <p>Parasitology and invasive diseases</p> <p>Epizootology and infectious diseases</p> <p>Forensic veterinary examination and autopsy of animals</p> <p>Immunology</p> <p>General and veterinary ecology</p> <p>Veterinary sanitation</p> <p>fodder plants</p> <p>Zoopsychology</p> <p>animal health</p> <p>Equine diseases</p> <p>Diseases of productive animals</p> <p>Diseases of small animals</p>

			<p>Diseases of small pets  Diseases of bees and entomophages  Fish pathology and aquaculture  Diseases of exotic animals  Anesthesiology, resuscitation and intensive care  Dermatology  Cardiology  Endocrinology  Nephrology  Veterinary ophthalmology  Animal Dentistry</p>
GPC-4	<p>The ability to use in professional activities methods of solving problems using modern equipment in the development of new technologies and use modern professional methodology to conduct experimental studies and interpret their results.</p>	<p>Maths  Inorganic and Analytical Chemistry  Organic chemistry  biological physics  Physical and colloidal chemistry  Computer science  Cytology, histology and embryology</p>	<p>Biological chemistry  Veterinary microbiology and mycology  Virology and biotechnology  Physiology and ethology of animals  Breeding with the basics of private zootechnics  pathological physiology  Veterinary radiobiology  Clinical diagnostics  pathological anatomy  Operative surgery with topographic anatomy  Instrumental diagnostic methods  Toxicology  Obstetrics, gynecology and andrology  Internal non-communicable diseases  general surgery  Private Veterinary Surgery  Parasitology and invasive diseases  Epizootology and infectious diseases  Immunology  Veterinary sanitation  Technology of processing livestock products  Medicinal and poisonous plants  fodder plants  Fundamentals of intellectual labor</p>

			Psychology of personality and professional self-determination Clinical laboratory diagnostics Laboratory diagnostics of infectious and parasitic diseases Equine diseases Diseases of productive animals Diseases of small animals Diseases of small pets Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive surgery Veterinary ophthalmology Animal Dentistry
GPC-5	The ability to draw up special documentation, analyze the results of professional activities and submit reporting documents using specialized databases.	Veterinary genetics Computer science	Breeding with the basics of private zootechnics Clinical diagnostics pathological anatomy Operative surgery with topographic anatomy Instrumental diagnostic methods Obstetrics, gynecology and andrology Internal non-communicable 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



			<p>Economics and organization of agricultural production</p> <p>Clinical laboratory diagnostics</p> <p>Laboratory diagnostics of infectious and parasitic diseases</p> <p>Organization of state veterinary supervision</p> <p>Veterinary and manufacturing laboratories with design basics</p> <p>Anesthesiology, resuscitation and intensive care</p> <p>Dermatology</p> <p>Cardiology</p> <p>Endocrinology</p> <p>Nephrology</p>
GPC-6	The ability to analyze, identify and carry out risk assessment of the risk of occurrence and spread of diseases.	Biology with the basics of ecology Introduction to the specialty	<p>Life safety</p> <p>Veterinary microbiology and mycology</p> <p>Virology and biotechnology</p> <p>Animal health and welfare</p> <p>Feeding animals with the basics of feed production</p> <p>Veterinary radiobiology</p> <p>Clinical diagnostics</p> <p>pathological anatomy</p> <p>Instrumental diagnostic methods</p> <p>Toxicology</p> <p>Obstetrics, gynecology and andrology</p> <p>Internal non-communicable diseases</p> <p>general surgery</p> <p>Private Veterinary Surgery</p> <p>Parasitology and invasive diseases</p> <p>Epizootology and infectious diseases</p> <p>Veterinary and sanitary examination</p> <p>Organization of veterinary business</p> <p>Forensic veterinary examination and autopsy of animals</p>

			<p>General and veterinary ecology  Veterinary sanitation  Technology of processing livestock products  Medicinal and poisonous plants  fodder plants  animal health  Clinical laboratory diagnostics  Laboratory diagnostics of infectious and parasitic diseases  Organization of state veterinary supervision  Equine diseases  Diseases of productive animals  Diseases of small animals  Diseases of small pets  Diseases of bees and entomophages  Fish pathology and aquaculture  Diseases of exotic animals  Anesthesiology, resuscitation and intensive care  Veterinary ophthalmology  Animal Dentistry</p>
GPC-7	Able to understand the principles of operation of modern information technologies and use them to solve problems of professional activity.	Computer science Maths	<p>Instrumental diagnostic methods  Organization of veterinary business  Fundamentals of intellectual work  Clinical laboratory diagnostics  Laboratory diagnostics of infectious and parasitic diseases  Veterinary and manufacturing laboratories with design basics  Anesthesiology, resuscitation and intensive care  Dermatology  Cardiology  Endocrinology  Nephrology</p>

			Reconstructive surgery
PC-1	The ability to collect an anamnesis of the life and disease of animals to identify the causes of diseases and their nature	Veterinary genetics Fundamentals of rhetoric and communication	Physiology and ethology of animals Breeding with the basics of private zootechnics Animal health and welfare Feeding animals with the basics of feed production Clinical diagnostics Toxicology Obstetrics, gynecology and andrology Internal non-communicable diseases general surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Veterinary deontology Zoopsychology animal health Psychology of personality and professional self-determination Equine diseases Diseases of productive animals Diseases of small animals Diseases of small pets Diseases of exotic animals Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive surgery Veterinary ophthalmology Animal Dentistry
PC-2	Ability to conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine a further research program, as well as in accordance with the plan of anti-epizootic measures, the plan for the prevention of	Animal anatomy	Physiology and ethology of animals pathological physiology Clinical diagnostics pathological anatomy Obstetrics, gynecology and andrology Diseases of bees and entomophages

	non-communicable animal diseases		Fish pathology and aquaculture Anesthesiology, resuscitation 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 diagnostics pathological anatomy Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-communicable 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 parasitic diseases Veterinary and manufacturing laboratories with design basics Equine diseases Diseases of productive animals Diseases of small animals Diseases of small pets Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, resuscitation and intensive care Dermatology

			<p>Cardiology Endocrinology Nephrology Reconstructive surgery Veterinary ophthalmology Animal Dentistry</p>
PC-4	<p>Ability to conduct clinical studies of animals using special (instrumental) and laboratory methods to clarify the diagnosis</p>	<p>Animal anatomy biological physics Cytology, histology and embryology</p>	<p>Biological chemistry Veterinary microbiology and mycology Virology and biotechnology Physiology and ethology of animals pathological physiology Clinical diagnostics pathological anatomy Instrumental diagnostic methods Obstetrics, gynecology and andrology Internal non-communicable diseases general surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Clinical laboratory diagnostics Laboratory diagnostics of infectious and parasitic diseases Equine diseases Diseases of productive animals Diseases of small animals Diseases of small pets Diseases of exotic animals Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology Nephrology Veterinary ophthalmology Animal Dentistry</p>
PC-5	<p>The ability to make a diagnosis based on the analysis of anamnesis data, general, special</p>	<p>Veterinary genetics Cytology, histology and embryology</p>	<p>Physiology and ethology of animals Breeding with the basics of private zootechnics</p>

	(instrumental) and laboratory research methods		Feeding animals with the basics of feed production pathological physiology Clinical diagnostics pathological anatomy Toxicology Obstetrics, gynecology and andrology Internal non-communicable diseases general surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Forensic veterinary examination and autopsy of animals Zoopsychology Equine diseases Diseases of productive animals Diseases of small animals Diseases of small pets Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive surgery Veterinary ophthalmology Animal Dentistry
PC-6	Ability to develop a treatment plan for animals based on the established diagnosis and individual characteristics of animals	Veterinary genetics Maths	Veterinary microbiology and mycology Virology and biotechnology pathological physiology Veterinary pharmacology Toxicology Obstetrics, gynecology and andrology Internal non-communicable diseases general surgery

			Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Immunology Zoopsychology Equine diseases Diseases of productive animals Diseases of small animals Diseases of small pets Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive surgery Veterinary ophthalmology Animal Dentistry
PC-7	The ability to select the necessary drugs of a chemical and biological nature for the treatment of animals, taking into account their cumulative pharmacological effect on the body	Inorganic and Analytical Chemistry Organic chemistry Physical and colloidal chemistry	Biological chemistry Veterinary microbiology and mycology Virology and biotechnology pathological physiology Veterinary pharmacology Toxicology Obstetrics, gynecology and andrology Internal non-communicable diseases general surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Medicinal and poisonous plants Equine diseases Diseases of productive animals Diseases of small animals Diseases of small pets

			<p>Diseases of bees and entomophages  Fish pathology and aquaculture  Diseases of exotic animals  Anesthesiology, resuscitation and intensive care  Dermatology  Cardiology  Endocrinology  Nephrology  Veterinary ophthalmology  Animal Dentistry</p>
PC-8	Ability to choose methods of non-drug therapy, including physiotherapy methods for the treatment of animals	-	<p>Veterinary microbiology and mycology  Virology and biotechnology  Physiology and ethology of animals  Feeding animals with the basics of feed production  pathological physiology  Veterinary radiobiology  Internal non-communicable diseases  general surgery  Private Veterinary Surgery  Equine diseases  Diseases of productive animals  Diseases of small animals  Diseases of small pets  Diseases of exotic animals  Anesthesiology, resuscitation and intensive care  Dermatology  Cardiology  Endocrinology  Nephrology  Reconstructive surgery  Veterinary ophthalmology  Animal Dentistry</p>
PC-9	The ability to conduct medical, including physiotherapy procedures using special equipment in compliance with safety rules	Animal anatomy	<p>Life safety  Veterinary microbiology and mycology  Virology and biotechnology  Physiology and ethology of animals  pathological physiology</p>



			<p>Veterinary radiobiology  general surgery  Private Veterinary Surgery  Equine diseases  Diseases of productive animals  Diseases of small animals  Diseases of small pets  Diseases of exotic animals  Anesthesiology,  resuscitation and intensive care  Dermatology  Cardiology  Endocrinology  Nephrology  Reconstructive surgery  Veterinary ophthalmology  Animal Dentistry</p>
PC-13	<p>Способность разрабатывать рекомендации по специальному кормлению больных животных с лечебной целью</p>	-	<p>Физиология и этология животных  Кормление животных с основами кормопроизводства  Патологическая физиология  Внутренние незаразные болезни  Общая хирургия  Частная ветеринарная хирургия  Лекарственные и ядовитые растения  Кормовые растения  Анестезиология, реанимация и интенсивная терапия  Дерматология  Кардиология  Эндокринология  Нефрология</p>
PC-14	<p>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 for animals (if necessary) based on the results of evaluating the effectiveness of treatment</p>	<p>Cytology, histology and embryology</p>	<p>Physiology and ethology of animals  pathological physiology  Veterinary pharmacology  Clinical diagnostics  pathological anatomy  Instrumental diagnostic methods  Toxicology  Obstetrics, gynecology and andrology</p>

			<p>Internal non-communicable diseases  general surgery  Private Veterinary Surgery  Parasitology and invasive diseases  Epizootology and infectious diseases  Clinical laboratory diagnostics  Equine diseases  Diseases of productive animals  Diseases of small animals  Diseases of small pets  Diseases of exotic animals  Anesthesiology, resuscitation and intensive care  Dermatology  Cardiology  Endocrinology  Nephrology  Reconstructive surgery  Veterinary ophthalmology  Animal Dentistry</p>
PC-15	Ability to organize prophylactic immunizations (vaccinations), therapeutic and prophylactic treatment of animals in accordance with the plan of anti-epizootic measures	-	<p>Virology and Biotechnology  Parasitology and invasive diseases  Epizootology and infectious diseases  Immunology  Veterinary sanitation  Diseases of bees and entomophages  Fish pathology and aquaculture</p>
PC-16	Ability to organize organizational, technical, zootechnical and veterinary measures aimed at the prevention of non-communicable diseases in accordance with the plan for the prevention of non-communicable animal diseases	<p>Veterinary genetics  Fundamentals of  Economics and  Management</p>	<p>Life safety  Physiology and ethology of animals  Breeding with the basics of private zootechnics  Animal health and welfare  Feeding animals with the basics of feed production  Obstetrics, gynecology and andrology  Internal non-communicable diseases  general surgery  Private Veterinary Surgery</p>

			<p>Organization of veterinary business</p> <p>Economics and organization of agricultural production</p> <p>Medicinal and poisonous plants</p> <p>fodder plants</p> <p>Zoopsychology</p> <p>animal health</p> <p>Equine diseases</p> <p>Diseases of productive animals</p> <p>Diseases of small animals</p> <p>Diseases of small pets</p> <p>Diseases of bees and entomophages</p> <p>Fish pathology and aquaculture</p> <p>Diseases of exotic animals</p> <p>Veterinary ophthalmology</p> <p>Animal Dentistry</p>
PC-17	Ability to organize disinfection and disinfestation of livestock buildings to ensure veterinary and sanitary well-being in accordance with the plan of veterinary and sanitary measures	Inorganic and Analytical Chemistry Organic chemistry Physical and colloidal chemistry	<p>Life safety</p> <p>Veterinary Microbiology and Mycology</p> <p>Virology and Biotechnology</p> <p>Veterinary pharmacology</p> <p>Veterinary sanitation</p> <p>animal health</p>
PC-18	The ability to draw up a plan for the medical examination of animals, taking into account their species and purpose, to conduct medical examinations, to develop recommendations for conducting preventive and therapeutic and therapeutic measures based on the results of an examination of animals conducted as part of the medical examination	Veterinary genetics	<p>Physiology and ethology of animals</p> <p>Breeding with the basics of private zootechnics</p> <p>Animal health and welfare</p> <p>Feeding animals with the basics of feed production</p> <p>pathological physiology</p> <p>Veterinary pharmacology</p> <p>Clinical diagnostics</p> <p>pathological anatomy</p> <p>Instrumental diagnostic methods</p> <p>Toxicology</p> <p>Obstetrics, gynecology and andrology</p> <p>Internal non-communicable diseases</p> <p>general surgery</p> <p>Private Veterinary Surgery</p> <p>animal health</p>

			<p>Clinical laboratory diagnostics Equine diseases Diseases of productive animals Diseases of small animals Diseases of small pets Diseases of exotic animals Dermatology Cardiology Endocrinology Nephrology Veterinary ophthalmology Animal Dentistry</p>
PC-19	<p>Ability to perform post-mortem diagnostic examination of animals in order to establish pathological processes, diseases, causes of death</p>	<p>Animal anatomy Cytology, histology and embryology</p>	<p>Life safety pathological anatomy Toxicology Obstetrics, gynecology and andrology Internal non-communicable diseases 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 parasitic diseases Equine diseases Diseases of productive animals Diseases of small animals Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Dermatology Cardiology Endocrinology Nephrology Veterinary ophthalmology Animal Dentistry</p>

#### 4. WORKLOAD OF PRACTICE

The total workload of the educational practice "**Pharmacology, clinical diagnostics, pathological anatomy**" is 3 credits (108 academic hours).

#### 5. PRACTICE CONTENT

*Table 5.1 Practice content \**

Name of practice section	Contents of the section (topics, types, practical activities)	Workload, ac.h.
Section 1. Pharmacology	Laboratory practice	10
	Excursion practice	10
	Field practice	10
Section 2 Clinical Diagnosis	Laboratory practice	15
	Excursion practice	15
Section 3. Pathological anatomy	Laboratory practice	15
	Museum practice	15
Preparation of a practice report		9
Preparation for the defense and defense of the practice report		9
<b>TOTAL:</b>		<b>108</b>

\* - the content of the practice by sections and types of practical training is FULLY reflected in the trainee's report on practice.

#### 6. EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Material and technical support for the practice, which meets the requirements of the order of the Rector of RUDN University No. 397-r dated April 9, 2021 "On approval and enforcement of the Regulations for ensuring labor protection and fire safety during practices" and instructions IOT No. 712-21 of RUDN University dated May 17, 2021 .2021 "On labor protection and fire safety during educational and production (including undergraduate and research) practices implemented at the Agrarian Technology Institute":

Equipped laboratory classrooms:

- Lecture hall.
- Prosectory.
- Sectional room for autopsy of cadaveric material.
- Premises for preparation and storage of fixed cadaveric material.
- Refrigerator for storage of cadaveric material.
- Pathological Anatomical Museum
- Equipment:
  - Medicines for work
  - Exhibition of veterinary drugs

- Educational demonstration tables,
- Scheme,
- Instruments for inspection, percussion, auscultation and thermometry of animals;
- Laboratory glassware, reagents and consumables;
- Tools for post-mortem examination of animal corpses - knives, tweezers, scalpels, scissors of all kinds, hammers, saws, etc.
- Microscopes.
- Demonstration microscopes with a video camera.
- Stereoscopic and binocular loupes.
- Tables with a special covering, screw stools.
- Multimedia settings.
- Preparations that provide the educational process:
  - Collection of museum micropreparations.
  - Wet museum macropreparations.
  - Demonstration tables and diagrams on the topics of lectures and practical exercises.
  - A multimedia collection of macro- and micropreparations characterizing pathological processes, animal diseases.

## 7. PRACTICE METHODS

"**Pharmacology, clinical diagnostics, pathological anatomy**" can be carried out both in the structural divisions of the Peoples' Friendship University of Russia or in organizations of Moscow (stationary), and at bases located outside of Moscow (external).

Conducting an practice based on an external organization (outside the RUDN University) is carried out on the basis of an appropriate agreement, which specifies the terms, place and conditions for conducting an practice in the base organization.

The timing of the practice corresponds to the period specified in the calendar training schedule of the Higher Education Program. The timing of the practice can be adjusted upon agreement with the Department of Educational Policy and the Department for the organization of practices and employment of students at RUDN University.

## 8. FSC RECOMMENDED SOURCES FOR COURSE STUDIES

*Main reading:*

1. Circulation and quality control of medicinal products for veterinary use in the territory of the Russian Federation: teaching aid / Yu.A. Vatnikov, M.I. Shopinskaya, S.G. Drukovsky, E.V. Kulikov. - Electronic text data. - Moscow: RUDN University, 2021. - 37 p.  
[http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=494768&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=494768&idb=0)

2. Quality control and veterinary and sanitary examination of raw materials of animal origin, feed and medicines for animals: textbook / I.R. Smirnova, V.P. Yaremchuk, L.P. Satyukova, M.I. Shopinskaya. - Electronic text data. - St. Petersburg: Kvadro, 2020. - 188 p.

[http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=487455&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=487455&idb=0)

3. Veterinary pharmacology. Dictionary-reference book: textbook for universities / A. V. Shadskaya, S. V. Kuznetsov, N. V. Sakhno, R. F. Kapustin. - St. Petersburg: Lan, 2020. - 136 p. <https://e.lanbook.com/book/152613>

4. Lavrinenkova, A. N. A course of lectures on veterinary pharmacology: a course of lectures / A. N. Lavrinenkova. - Bryansk: Bryansk State Agrarian University, 2018. - 104 p. <https://e.lanbook.com/book/133070>

5. Usha Boris Veniaminovich. Clinical diagnosis of internal non-communicable diseases of animals / B.V. Usha, I.M. Belyakov, R.P. Pushkarev. - Electronic text data. - St. Petersburg: Kvadro, 2020. - 487 p. [http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=487452&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=487452&idb=0)

6. Usha Boris Veniaminovich. Propaedeutics of internal non-communicable diseases of animals / B.V. Usha, I.M. Belyakov. - Electronic text data. - St. Petersburg: Kvadro, 2020. - 474 p. [http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=487539&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=487539&idb=0)

7. Ivanov A.A. Clinical laboratory diagnostics: textbook / A.A. Ivanov. - St. Petersburg. : Publishing house "Lan", 2017. - 432 p. [http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=465014&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=465014&idb=0)

8. Internal diseases of animals. For vocational schools: a textbook for vocational education / G. G. Shcherbakov, A. V. Yashin, S. P. Kovalev, S. V. Vinnikova. - 6th ed., revised. - St. Petersburg: Lan, 2021. - 496 p. <https://e.lanbook.com/book/156408>

9. Clinical diagnostics in veterinary medicine: textbook / compiled by N. A. Bashkatov. - Persianovsky: Donskoy GAU, 2020. - 161 p. <https://e.lanbook.com/book/148538>

10. Pathological physiology and pathological anatomy of animals: textbook / A. V. Zharov, L.N. Adamushkina, T.V. Losev, A.P. Strelnikov; Ed. A.V. Zharova. - 4th ed., revised. - St. Petersburg. : Publishing house "Lan", 2018. - 416 p. [http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=464906&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=464906&idb=0)

11. Baimatov V.N. Workshop on pathological physiology + CD: textbook / V.N. Baimatov. - 2nd ed., revised. - St. Petersburg. : Publishing house "Lan", 2017. - 352 p. [http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=464947&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=464947&idb=0)

12. Televova, N. R. Pathological physiology. Section Typical pathological processes: teaching aid / N. R. Televova, F. G. Astarkhanov, F. N. Dagirowa. - Makhachkala: DagGAU named after M.M. Dzhambulatov, 2020. - 58 p. <https://e.lanbook.com/book/159426>

13. Pathological physiology and pathological anatomy of animals: a textbook for universities / A. V. Zharov, L. N. Adamushkina, T. V. Loseva, A. P. Strelnikov;

edited by A. V. Zharov. - 7th ed., Sr. - St. Petersburg: Lan, 2021. - 416 p.  
<https://e.lanbook.com/book/159515>

14. Zharov, A. V. Pathological anatomy of animals: a textbook for universities / A. V. Zharov. - 3rd ed., erased. - St. Petersburg: Lan, 2021. - 604 p.  
<https://e.lanbook.com/book/164712>

*Additional reading:*

1. Veterinary pharmacology. Toxicology. Antibiotics. Modern classification (registry of 2017): guidelines / compiled by E. S. Tkacheva. - Vologda: VGMHA im. N.V. Vereshchagin, 2018. - 36 p.  
<https://e.lanbook.com/book/130882>

2. Karmaliev, R. S. Veterinary pharmacology: textbook / R. S. Karmaliev. - Uralsk: ZKATU im. Zhangir Khan, 2016. - 264 p.  
<https://e.lanbook.com/book/147888>

3. Prevention of infectious animal diseases by aerosols of chemical and biological preparations: monograph / A.T. Kushnir, I.A. Bureev, Yu.O. Selyaninov [i dr.]. - St. Petersburg. : Publishing house "Lan", 2016. - 192 p.  
[http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=465095&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=465095&idb=0)

4. Sokolov, V. D. Pharmacology: textbook / V. D. Sokolov. - 4th ed., Rev. and additional - St. Petersburg: Lan, 2013. - 576 p.  
<https://e.lanbook.com/book/10255>

5. Clinical diagnosis of internal animal diseases: textbook / S.P. Kovalev, A.P. Kurdeko, E.L. Bratushkina [i dr.]. - 2nd ed., erased. - St. Petersburg. : Publishing house "Lan", 2016. - 544 p.  
[http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=465083&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=465083&idb=0)

6. Clinical gastroenterology of animals: textbook / I.I. Kalyuzhny, G.G. Shcherbakov, A.V. Yashin [i dr.]. - 2nd ed., corrected. - St. Petersburg. : Publishing house "Lan", 2015. - 448 p.  
[http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=465124&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=465124&idb=0)

7. Seleznev S.B. Clinical morphology of the pancreas of dogs in ultrasound diagnostics / S.B. Seleznev, D.I. Esina, E.V. Kulikov // Bulletin of the Peoples' Friendship University of Russia: Agronomy and animal husbandry. - 2014. - No. 2. - P. 39 - 50.  
[http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=431663&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=431663&idb=0)

8. Seregin Ivan Georgievich. Veterinary and sanitary control of animal slaughter products for endemic diseases / I.G. Seregin, A.M. Abdullaeva, Yu.A. Yuldashbaev. - Electronic text data. - St. Petersburg: Kvadro, 2020. - 154 p.  
[http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=487449&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=487449&idb=0)



9. Lukashik G.V. Anatomical and physiological features of pigs and pathoanatomical autopsy of their corpses: textbook / G.V. Lukashik, V.G. Sokolov, N.V. Saenko. - St. Petersburg. : Publishing house "Lan", 2016. - 100 p. [http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=465062&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=465062&idb=0)
10. Pathological physiology and pathological anatomy of animals: textbook / A.V. Zharov, L.N. Adamushkina, T.V. Losev, A.P. Strelnikov; Ed. A.V. Zharova. - 2nd ed., revised. and additional ; Electronic text data. - St. Petersburg. : Lan, 2014. - 416 p. [http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=452266&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=452266&idb=0)
11. Savinkov, A. V. Pathological physiology: textbook / A. V. Savinkov, V. M. Meshkov. - Samara: SamGAU, 2018. - 188 p. <https://e.lanbook.com/book/111866>
12. Clinical and biochemical aspects of acid-base homeostasis and their significance in the pathology of productive animals: monograph / I. I. Kalyuzhny, S. P. Ubirayev, G. G. Shcherbakov [and others]; edited by I. I. Kalyuzhny. - St. Petersburg: Lan, 2019. - 192 p. <https://e.lanbook.com/book/113388>

#### *Internet-(based) sources*

1. Electronic libraries with access for RUDN students:
  - RUDN Electronic Library System - RUDN EBS <http://lib.rudn.ru/MegaPro/Web>
  - ELS "University Library Online" <http://www.biblioclub.ru>
  - EBS Yurayt <http://www.biblio-online.ru>
  - ELS "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru)
  - EBS "Lan" <http://e.lanbook.com/>
  - EBS "Trinity Bridge"
  - .....
2. Databases and search engines:
  - electronic fund of legal and normative-technical documentation <http://docs.cntd.ru/>
  - Yandex search engine <https://www.yandex.ru/>
  - Google search engine <https://www.google.ru/>
 Electronic version of the document
  - abstract database SCOPUS <http://www.elsevierscience.ru/products/scopus/>

#### *Learning toolkits for practice, filling out a diary and preparing an practice report\*:*

1. Safety rules for the passage of educational practice "**Pharmacology, clinical diagnostics, pathological anatomy**" (primary briefing).
  2. The general arrangement and principle of operation of technological production equipment used by students during their practice; flow charts and regulations, etc. (if necessary).
  3. Guidelines for filling in a diary by students and preparing a practice report.
- \* - Learning toolkits for self- studies in the RUDN LMS TUIS

## **8. ASSESSMENT AND EVALUATION TOOLKIT AND SCORE-RATING ASSESSMENT SYSTEM OF THE LEVEL OF FORMATION COMPETENCES OF PRACTICES**

Evaluation materials and a point-rating system\* for assessing the level of competencies (part of competencies) based on the results of passing the "**Pharmacology, clinical diagnostics, pathological anatomy**" are presented in the Appendix to this Practice Program (module).

\* - AT and SRS are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

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