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**Federal State Autonomous Educational Institution of  
higher education "Peoples' Friendship University of Russia" RUDN University"**

**Agrarian Technological Institute**

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(name of the main educational unit (MEU) - the developer of the postgraduate program)

**Department of Veterinary Medicine**

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(name of the basic educational unit (BEU) - the developer of the postgraduate program)

## **WORKING PROGRAM OF THE DISCIPLINE**

**Animal pathology, morphology, physiology, pharmacology and toxicology**

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(name of discipline/module)

**Scientific specialty:**

**4.2.1. Animal pathology, morphology, physiology, pharmacology and toxicology**

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(code and name of scientific specialty)

**The development of the discipline is carried out as part of the implementation of the postgraduate program:**

**Animal pathology, morphology, physiology, pharmacology and toxicology**

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(name of postgraduate program)

## 1. THE PURPOSE OF MASTERING THE DISCIPLINE

The purpose of mastering the discipline "Animal Pathology, Morphology, Physiology, Pharmacology and Toxicology" is the preparation for the candidate exam in the specialty 4.2.1. Animal pathology, morphology, physiology, pharmacology and toxicology

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

Mastering the discipline "Animal Pathology, Morphology, Physiology, Pharmacology and Toxicology" aimed at preparing for the candidate's examinations.

As a result of studying the discipline, the graduate student must:

### **Know:**

- general pathological anatomy;
- morphological manifestations of metabolic disorders in tissues;
- disorders of blood and lymph circulation and tissue fluid exchange;
- adaptive, compensatory (restorative) and tumor processes;
- private (special pathological) anatomy;
- morphogenesis, pathomorphology and pathomorphological diagnostics of infectious and non-infectious diseases;

### **Be able to:**

- correctly take, fix and send pathological material for laboratory research;
- apply the basic methods of pathohistological technique and diagnosis of animal diseases;
- to carry out complex differential pathomorphological diagnostics - animal diseases at autopsy, as well as during histopathological studies;

### **Own:**

- specific theoretical knowledge in the discipline.
- modern methods and ways of studying the structural organization of biological objects at all its levels.
- the technique of pathoanatomical autopsy of the corpses of animals of various types;
- modern information and innovative technologies.

## 3. VOLUME OF DISCIPLINE AND TYPES OF EDUCATIONAL WORK

The total labor intensity of the discipline "Animal Pathology, Morphology, Physiology, Pharmacology and Toxicology" is 3 credit units.

*Table 4.1. Types of educational work by periods of mastering the postgraduate program*

Type of study work	TOTAL,ac.h.	Course			
		1	2	3	4
<i>Contact work, ac.h.</i>					
including:					
Lectures (LC)	30	30			
Laboratory work (LW)					
Practical/seminar sessions (SS)	30	30			

Type of study work		TOTAL,ac.h.	Course			
			1	2	3	4
<i>Independent work of students, ac.h.</i>		48	48			
<i>Control (test with assessment), ac.h.</i>						
<b>The total complexity of the discipline</b>	ac.h.	<b>108</b>	<b>108</b>			
	credit	<b>3</b>	<b>3</b>			

## 5. CONTENT OF THE DISCIPLINE

*Table 5.1. The content of the discipline (module) by type of educational work*

Name of the discipline section	Contents of the section (topic)	Type of study work
Section 1. General pathology	Topic 1.1. Thanatology	LC
	Topic 1.2. pathohistotechnics	SS
	Topic 1.3. Alteration	LC, SS
	Topic 1.4. Blood and lymph circulation disorders	LC, SS
	Topic 1.5. Inflammation. Immunomorphology, immunopathology	LC, SS
	Topic 1.6. Adaptive and compensatory reactions. tumor growth	LC, SS
Section 2. Particular pathology	Topic 2.1. Pathophysiology of the blood. Pathophysiology of the cardiovascular system	LC, SS
	Topic 2.2. Pathophysiology of the respiratory system.	LC, SS
	Topic 2.3. Pathophysiology of the excretory system (kidneys).	LC, SS
	Topic 2.4. Pathophysiology of digestion. Pathophysiology of the liver, pancreas	LC, SS
	Topic 2.5. Pathophysiology of the endocrine system.	LC, SS
	Topic 2.6. Pathophysiology of the immune system.	LC, SS
	Topic 2.7. Pathophysiology of the nervous system	LC, SS

## 6. LOGISTICS AND TECHNICAL SUPPORT OF THE DISCIPLINE

*Table 6.1. Logistics of discipline*

Audience type	Audience equipment	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
Lecture	An auditorium for lecture-type classes, equipped with a set of specialized furniture; board (screen) and technical means of multimedia presentations.	Hall 1, 2 ATI Notebook, portable multimedia projector Casio XJ-M250 - 1 pc., Screen - 1 pc.

<b>Audience type</b>	<b>Audience equipment</b>	<b>Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)</b>
Seminar	An auditorium for conducting seminar-type classes, group and individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and technical means for multimedia presentations.	<p>Room №66 ATI Refrigerating cabinet “ИИХ” 1.4 in the amount of one piece, medical freezer MDF-5410 in the amount of one piece, shadowless operating lamp Convelar; mobile with a battery in the amount of two pieces, a veterinary procedural and operating table in the amount of one piece, anatomical preparations in the amount of two hundred and forty pieces.</p> <p>Room 344 ATI A set of specialized furniture, a binocular multi-purpose microscope XC90 in the amount of ten pieces, histological preparations in the amount of fifty pieces, zoological preparations in the amount of fifty pieces. Technical means: projector, personal computer. There is Internet access.</p>
For independent work of students	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 the EIOS.	<p>Room 344 ATI A set of specialized furniture, a binocular multi-purpose microscope XC90 in the amount of ten pieces, histological preparations in the amount of fifty pieces, zoological preparations in the amount of fifty pieces. Technical means: projector, personal computer. There is Internet access.</p>

\* - the audience for independent work of students is required!

## 7. EDUCATIONAL-METHODOLOGICAL AND INFORMATION SUPPORT OF THE DISCIPLINE

### *Main literature:*

1. Zharov A.V., Shishkov V.P., Zhakov M.S. and other Pathological anatomy of farm animals / Ed. V.P. Shishkov and A.V. Zharova: Study. for universities. - M.: Kolos, 2013.- 536 p.  
<http://lib.rudn.ru/ProtectedView/Book/ViewBook/5665>
2. Zharov, A. V. Pathological physiology and pathological anatomy of animals: Textbook / A. V. Zharov [and others]; Ed. A. V. Zharova. - 2nd ed., revised and additional - St. Petersburg. : Lan, 2014. - 416 p.  
<http://lib.rudn.ru/ProtectedView/Book/ViewBook/5666>

### *Additional literature:*

1. Andreeva M.V., Nyukkanov A.N. JUDICIAL VETERINARY AND SANITARY EXAMINATION: author. dis. ... Dr., Associate Professor, Ph.D. Veterinary Sciences - Yakutsk, 2014.
2. Litvitsky P.F. Pathological anatomy and pathological physiology. - M.: GEOTAR-Media, 2015. - 496 p.
3. Vakhrusheva T. I. General pathological anatomy. - M.: Lambert, 2015. - 364 p. <https://e.lanbook.com/book/45681>
- four. Klevno V. A. Forensic medical examination. - M.: GEOTAR-Media, 2013. - 136 p.
5. Salimov V.A. Workshop on the pathological anatomy of animals [Electronic resource]: Textbook / V.A. Salimov. - 2nd ed., revised. and additional - St. Petersburg. : Publishing house "Lan", 2013. - 352 p. - (Textbooks for universities. Special literature). - ISBN 978-5-8114-1418-5.  
[http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=465234&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=465234&idb=0)
6. Kozlov I.G., Krivenko D.V. Pathological anatomy and forensic veterinary examination. - Saratov: Saratov State Agrarian University, 20\_\_\_. - 129 s

### *Resources of the information and telecommunications network "Internet":*

1. RUDN ELS and third-party ELS, to which university students have access on the basis of concluded agreements:
  - RUDN Electronic Library System - RUDN EBS <http://lib.rudn.ru/MegaPro/Web>
  - ELS "University Library Online" <http://www.biblioclub.ru>
  - EBS Yuray <http://www.biblio-online.ru>
  - EBS "Student Advisor" [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/>

- abstract database SCOPUS <http://www.elsevierscience.ru/products/scopus/>
- www.cnsnb.ru,
- www.elibrary.ru,
- www.vet.purdue.edu
- www.allvet.ru,
- www.glossary.ru
- <https://www.ncbi.nlm.nih.gov/pubmed>
- <http://www.uchvuz.ru>
- <http://www.veterinarka.ru>
- <https://www.medlit.biz>
- <http://effect3.ru>
- <https://cyberleninka.ru/>

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

1. A course of lectures on the discipline "Pathology of animals, morphology, physiology, pharmacology and toxicology".
2. Laboratory workshop on the discipline "Pathology of animals, morphology, physiology, pharmacology and toxicology" (if laboratory work is available).

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

## **8. EVALUATION MATERIALS AND SCORE-RATING SYSTEM FOR ASSESSING THE LEVEL OF FORMATION OF COMPETENCES IN THE DISCIPLINE**

Evaluation materials and a point-rating system for assessing the development of the discipline are presented in the Appendix to this Work Program of the discipline.

\* - OM and BRS are formed on the basis of the requirements of the relevant local normative act of the Peoples' Friendship University of Russia.

### **DEVELOPERS:**

docent		<b>Kulikov E.V.</b>
Position, BEU	Signature	Surname N.P.
Position, BEU	Signature	Surname N.P.
Position, BEU	Signature	Surname N.P.
<b>HEAD OF BEU:</b> <b>Department of Veterinary Medicine</b>		<b>Vatnikov Yu.A.</b>
Name of BEU	Signature	Surname N.P.

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