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

**Agrarian and Technological Institute**

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

**COURSE SYLLABUS**

Pathological Physiology

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course title

**Recommended by the Didactic Council for the Education Field of:**

36.05.01 Veterinary

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field of studies / speciality code and title

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

Veterinary

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higher education programme profile/specialisation title

## 1. GOALS AND OBJECTIVES OF THE COURSE

The aim of mastering the course "**Pathological physiology**" is to master the basics of the laws of the development of pathological processes; concepts about the essence of life, health, disease; to study typical pathological processes: inflammation, tumors, fever, hypoxia, starvation, etc.; to reveal the issues of pathological physiology of organs and systems.

## 2. REQUIREMENTS FOR LEARNING OUTCOMES

The implementation of the course "**Pathological physiology**" 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 course (results of the development of the course)*

Competence code	Competence descriptor	Indicators of competence accomplishment (within the course)
GPC-1	Able to determine the biological status and normative clinical indicators of animal organs and systems	GPC-1.2 Able to predict disturbances in biological status when diseases are suspected
GPC-6	Capable of analyzing, identifying, and assessing the risk of disease emergence and spread	GPC-6.1 Have knowledge of etiology and pathogenesis of animal diseases of different species.

## 3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course "**Pathological physiology**" 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 courses and /or practices that contribute to achieving the planned results of mastering the course "**Pathological physiology**".

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

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
GPC-1	Able to determine the biological status and normative clinical indicators of animal organs and systems	Veterinary genetics Animal health and welfare	Epizootology and infectious diseases Clinical internship Industrial practice Academic research practice with the preparation of a

			scientific qualification project Preparation for and passing the state exam
GPC-6	Capable of analyzing, identifying, and assessing the risk of disease emergence and spread	Veterinary genetics Animal health and welfare	Epizootology and infectious diseases Clinical internship Industrial practice Academic research practice with the preparation of a scientific qualification project Preparation for and passing the state exam

#### 4. COURSE WORKLOAD AND TRAINING ACTIVITIES

Course workload of the course "**Pathological physiology**" is 9 credits.

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

Types of academic activities		HOURS	Semesters				
			4	5	-	-	
Contact academic hours		136	68	68	-	-	
including							
Lectures		34	17	17	-	-	
Lab work		102	51	51	-	-	
Seminars (workshops/tutorials)		-	-	-	-	-	
Self-study		154	66	87	-	-	
Evaluation and assessment (exam/pass/fail grading)		35	10	25	-	-	
<b>Course workload</b>		Academic hour	<b>324</b>	<b>144</b>	<b>180</b>	-	-
		Credit unit	<b>9</b>	<b>4</b>	<b>5</b>	-	-

#### 5. COURSE CONTENTS

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

Modules	Content of the modules (topics)	Types of academic activities
Module 1. General pathological physiology	Topic 1. Pathological physiology as a fundamental science and academic course.	Lectures, Lab work.
	Topic 1.1 General nosology.	Lectures, Lab

		work.
	Topic 1.2 General etiology.	Lectures, Lab work.
	Topic 1.3 General pathogenesis.	Lectures, Lab work.
	Topic 1.4 The effect of pathogenic environmental factors.	Lectures, Lab work.
	Topic 1.5 Urgent conditions.	Lectures, Lab work.
	Topic 1.6 Reactivity and resistance of the body.	Lectures, Lab work.
	Topic 1.7 Disorders of local blood and lymph circulation.	Lectures, Lab work.
	Topic 1.8 Inflammation.	Lectures, Lab work.
	Topic 1.9 Disorders of thermoregulation of the body. Fevers.	Lectures, Lab work.
	Topic 1.10 Pathological physiology of metabolic and energy disorders.	Lectures, Lab work.
	Topic 1.11 Tumor growth.	Lectures, Lab work.
Module 2. Private pathological physiology.	Topic 2. Blood pathophysiology.	Lectures, Lab work.
	Topic 2.1 Pathophysiology of the cardiovascular system.	Lectures, Lab work.
	Topic 2.2 Pathophysiology of the respiratory system.	Lectures, Lab work.
	Topic 2.3 Pathophysiology of the excretory system (kidneys).	Lectures, Lab work.
	Topic 2.4 Pathophysiology of digestion.	Lectures, Lab work.
	Topic 2.5 Pathophysiology of the liver, pancreas.	Lectures, Lab work.
	Topic 2.6 Pathophysiology of the endocrine system.	Lectures, Lab work.
	Topic 2.7 Pathophysiology of the immune system.	Lectures, Lab work.
	Topic 2.8 Pathophysiology of the nervous system.	Lectures, Lab work.

## 6. COURSE EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Material and technical support of the course

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

## 7. RESOURCES RECOMMENDED FOR COURSE STUDIES

### *Main readings:*

1. Pathological physiology and pathological anatomy of animals [Electronic resource] : Textbook / A.V. Zharov [et al.]; Edited by A.V. Zharov. - 4th ed., revised. - St. Petersburg : Publishing House "Lan", 2018. - 416 p. - (Textbooks for universities. Special literature). - ISBN 978-5-8114-1534-2. [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)
2. Baymatov V.N. Workshop on pathological physiology + CD [Electronic resource] : Textbook / V.N. Baymatov. - 2nd ed., revised. - St. Petersburg : Publishing House "Lan", 2017. - 352 p. - (Textbooks for universities. Special literature). - ISBN 978-5-8114-1443-7. [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)

### *Additional Readings:*

1. Savinkov, A.V. Pathological physiology: textbook / A.V. Savinkov, V.M. Meshkov. — Samara : SamGAU, 2018. — 188 p. — ISBN 978-5-88575-519-1. — Text : electronic // Electronic library system "Lan" : [website]. — URL: <https://e.lanbook.com/book/111866>
2. Bogdanov, A.V., Golubenko Yu.V., Pathological physiology and pathological anatomy of animals. - St. Petersburg: Lan, 2014. - 416 p.
3. Lyutinsky S.I. Pathological physiology of animals. - 2nd ed. - St. Petersburg: KolosS, 2013. - 496 p.
4. Vasiliev, Yu.G. Tests on pathological physiology: an educational and methodological manual / Yu.G. Vasiliev, E.I. Troshin, D.S. Berestov. — Saint Petersburg : Lan, 2015. — 400 p. — ISBN 978-5-8114-1810-7. — Text : electronic // Electronic library system "Lan" : [website]. — URL:

<https://e.lanbook.com/book/58163>

#### *Internet sources*

1. Electronic libraries (EL) of RUDN University and other institutions, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System (RUDN ELS)

<http://lib.rudn.ru/MegaPro/Web>

- EL "University Library Online" <http://www.biblioclub.ru>
- EL "Yurayt" <http://www.biblio-online.ru>
- EL "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru)
- EL "Lan" <http://e.lanbook.com/>
- EL "Trinity Bridge"

#### *2. Databases and search engines:*

- electronic foundation of legal and normative-technical documentation

<http://docs.cntd.ru/>

- Yandex search engine [https:// www.yandex.ru/](https://www.yandex.ru/)
- Google search engine <https://www.google.ru/>
- Scopus abstract database <http://www.elsevierscience.ru/products/scopus/>

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

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

\* - The training toolkit and guidelines for the internship are placed on the internship page in the university telecommunication training and information system under the set procedure.

## **8. ASSESSMENT TOOLKIT AND GRADING SYSTEM\* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL AS COURSE RESULTS**

The assessment toolkit and the grading system\* to evaluate the level of competences (competences in part) formation as the course results are specified in the Appendix to the course syllabus.

\* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

### **DEVELOPER:**

Associate Professor of the Department of Veterinary  
Medicine

Position, Basic curriculum

Kulikov E.V.

Full name.

Подпись

Associate Professor of the Department of Veterinary  
Medicine

Position, Basic curriculum

Petrov A.K.

Full name.

Signature

### **HEAD OF EDUCATIONAL DEPARTMENT:**

Department of Veterinary Medicine

Name Basic Curriculum

Signature

Vatnikov Yu.A.

Full name.

**HEAD OF**

**HIGHER EDUCATION PROGRAMME:**

Director of the Department of Veterinary Medicine

Position, Basic curriculum

Signature

Vatnikov Yu.A.

Full name