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

Agrarian and Technological Institute

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

COURSE SYLLABUS

Physiology and ethology of animals

course title

Recommended by the Didactic Council for the Education Field of:

36.05.01 Veterinary

field of studies / speciality code and title

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

36.05.01 Veterinary

higher education programme profile/specialisation title

1. GOALS AND OBJECTIVES OF THE COURSE

The aim of studying the course «**Physiology and ethology of animals**» is the formation of fundamental and professional knowledge about the physiological processes and functions in the body of mammals and birds, about their qualitative originality in the body of productive farm animals, domestic, laboratory and exotic animals, which are necessary for a veterinarian to scientifically substantiate activities related to the creation of optimal conditions for keeping, feeding and exploiting animals, preventing diseases, assessing health, the nature and degree of disorders in the activity of organs and the body, determining the ways and means of influencing the body in order to correct the activity of organs.

2. REQUIREMENTS FOR LEARNING OUTCOMES

The implementation of the course «**Physiology and ethology of animals**» is aimed at the formation of the following competencies (part of competencies):

Table 2.1. The list of competencies formed in the course of mastering the course (results of mastering 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-1.1 Knows the structure and functions of the main animal body systems, taking into account species-specific features

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course "**Physiology and ethology of animals**" 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 "**Physiology and ethology of animals**".

Table 3.1. shows the previous and subsequent courses aimed at the formation of course competencies in accordance with the competence matrix of Higher Education Program.

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	Animal anatomy	Study practice Clinical internship Industrial practice Academic research practice with the preparation of a scientific qualification project

			Preparation for and passing the state exam
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4. COURSE WORKLOAD AND TRAINING ACTIVITIES

Course workload of the course «Physiology and ethology of animals» is 9 credit units.

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				
		3	4	-	-	
Contact academic hours	180	85	90			
Including:						
Lectures	72	34	36	-	-	
Lab work	108	51	54	-	-	
Seminars	-	-	-	-	-	
Self-studies	106	75	34	-	-	
Evaluation and assessment	38	20	20	-	-	
Course workload	ac.h.	324	180	144	-	-
	credit units	9	5	4	-	-

5. COURSE CONTENTS

Table 5.1 Content of the course (module) by type of study

Modules	Content of the modules (topics)	Types of academic activities
Module 1. Excitable tissues.	Topic 1.1 Introduction to Physiology.	Lectures, Lab work
	Topic 1.2 Physiology of excitable tissues.	Lectures, Lab work
	Topic 1.3 Physiology of nerve fibers and muscles.	Lectures, Lab work
Module 2. Nervous System.	Topic 2.1 Physiology of the Central Nervous System.	Lectures, Lab work
	Topic 2.2 Physiology of the spinal cord.	Lectures, Lab work
	Topic 2.3 Brain Physiology.	Lectures, Lab work
	Topic 2.4 Physiology of Higher Nervous Activity.	Lectures, Lab work
	Topic 2.5 Autonomic nervous system.	Lectures, Lab work
Module 3. The blood system.	Topic 3.1 Physiology of blood: functions, properties.	Lectures, Lab work
	Topic 3.2 Corpuscular elements of blood.	Lectures, Lab work

	Topic 3.3 Leukocyte formula.	Lectures, Lab work
	Topic 3.4 Blood physiology: hemoglobin, plasma, lymph.	Lectures, Lab work
	Topic 3.5 Blood physiology: hemostasis.	Lectures, Lab work
	Topic 3.6 Blood groups, blood transfusion.	Lectures, Lab work
	Topic 3.7 Physiology of the immune system.	Lectures, Lab work
Module 4. Endocrine glands.	Topic 4.1 Physiology of the endocrine glands.	Lectures, Lab work
Module 5. Physiological adaptation of animals.	Topic 5.1 Physiology of animal adaptation.	Lectures, Lab work
Module 6. Physiology of lactation.	Topic 6.1 Physiology of lactation of animals.	Lectures, Lab work
Module 7. The cardiovascular system.	Topic 7.1 Physiology of the heart: functions and properties of the heart muscle.	Lectures, Lab work
	Topic 7.2 Physiology of the heart: conduction system, biphasic rhythm, cardiac impulse, tones.	Lectures, Lab work
	Topic 7.3 Physiology of blood circulation: fundamentals of hemodynamics.	Lectures, Lab work
	Topic 7.4 Physiology of blood circulation: pulse, blood pressure, electrocardiography.	Lectures, Lab work
Module 8. Digestive system.	Topic 8.1 Physiology of digestion in the oral cavity.	Lectures, Lab work
	Topic 8.2 Physiology of digestion in the stomach.	Lectures, Lab work
	Topic 8.3 Physiology of digestion in the intestine.	Lectures, Lab work
	Topic 8.4 Peculiarities of digestion in ruminants.	Lectures, Lab work
Module 9. Respiratory system.	Topic 9.1 Respiratory physiology: inhalation-exhalation mechanism, vital capacity of the lungs.	Lectures, Lab work
	Topic 9.2 Respiratory physiology: gas exchange, regulation.	Lectures, Lab work
Module 10. Metabolism and energy.	Topic 10.1 Metabolism, protein, fat, carbohydrate, water and mineral metabolism.	Lectures, Lab work

	Topic 10.2 Energy exchange.	Lectures, Lab work
Module 11. The reproductive system.	Topic 11.1 Physiology of reproduction.	Lectures, Lab work
Module 12. Excretory system.	Topic 12.1 Physiology of excretion.	Lectures, Lab work
Module 13. Analyzer systems.	Topic 13.1 Physiology of visual, auditory, skin, gustatory and olfactory analyzers.	Lectures, Lab work
Module 14. Ethology.	Topic 14.1 Studying the characteristics of animal behavior.	Lectures, Lab work

6. COURSE EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Classroom for Academic Activity Type	Classroom equipment	Specialized training/laboratory equipment, software and materials for mastering the course (if necessary)
Lecture	Auditorium for lecture-type classes, equipped with a set of specialized furniture; blackboard (screen) and technical means of multimedia presentations.	<ul style="list-style-type: none"> - <i>Virtual Physiology.</i> - <i>HS hemometers (Sali).</i> - <i>Goryaev counting chamber.</i> - <i>Electrochemograph.</i> - <i>Biological microscopes.</i> - <i>Erythrocyte sedimentation rate measuring devices: Panchenkov capillaries.</i> - <i>Registration capsule (set).</i> - <i>Blood-forme element counter.</i> - <i>Korotkoff tonometer for measuring blood pressure.</i> - <i>Phonendoscope.</i> - <i>Mixers (melangers) for counting leukocytes, erythrocytes.</i> - <i>Device for determining Rh factor, blood groups</i>
Laboratory	Auditorium for laboratory works, individual consultations, current control and intermediate attestation, equipped with a set of specialized furniture and equipment.	<ul style="list-style-type: none"> - <i>Virtual Physiology.</i> - <i>HS hemometers (Sali).</i> - <i>Goryaev counting chamber.</i> - <i>Electrochemograph.</i> - <i>Biological microscopes.</i> - <i>Erythrocyte sedimentation rate measuring devices: Panchenkov capillaries.</i> - <i>Registration capsule (set).</i> - <i>Blood-forme element counter.</i> - <i>Korotkoff tonometer for measuring blood pressure.</i> - <i>Phonendoscope.</i>

		- Mixers (<i>melangers</i>) for counting leukocytes, erythrocytes. - Device for determining Rh factor, blood groups
Self-studies	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.	

7. RESOURCES RECOMMENDED FOR COURSE STUDIES

Main readings:

1. Sotnikova E.D. Physiology and ethology of animals: physiology of digestion: teaching aid / E.D. Sotnikova, E.V. Kulikov. - Electronic text data. - Moscow : RUDN, 2021. - 44 p.
<https://lib.rudn.ru/MegaPro/Download/MObject/9208>
2. Physiology of digestion and metabolism [Electronic resource] : Textbook / I.N. Medvedev; Ed. by I.N. Medvedev. - SPb. : Lan' Publisher, 2016. - 144 p.
http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=465094&idb=0
3. Sotnikova E.D. Physiology and ethology of animals: physiology of blood and immune system. Theoretical and practical course = Physiology of Blood and Immune System. Theoretical and practical Course / E.D. Sotnikova, E.V. Kulikov, V.M. Byakhova. - Book in English; electronic text data. - Moscow : RUDN, 2020. - 66 p <https://lib.rudn.ru/MegaPro/Download/MObject/9111>
4. Fomina L.L. Physiology and ethology of animals: Workshop for students of specialty 36.05.01 Veterinary Medicine 2017.-102p.
<https://e.lanbook.com/book/130900>

Additional Readings:

1. Medvedev I.N. Physiological regulation of an organism [Electronic resource] : textbook / I.N. Medvedev, S.Y. Zavalishina, N.V. Kutafina. - SPb. : Lan Publishing House, 2016. - 392 p.
http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=465061&idb=0
2. Physiology of muscular and nervous systems [Electronic resource] : Textbook / I.N. Medvedev [et al]; Ed. by I.N. Medvedev. - SPb. : Lan' Publisher, 2015. - 176 p.
http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=465099&idb=0
3. Ivanov A.A., Ksenofontova A.A., Voinova O.A. Practicum on ethology with the bases of zoopsychology. - 1st ed. - SPb.: Lan', 2013. - 368 p.
4. Bolotiuk V.A., Bolotiuk L.A. Comparative physiology of animals. - SPb: Lan', 2010. - 416 p.
5. Golikov A.N., et al; Physiology of farm animals.- 3rd edition, - M.: Agropromizdat, 2009. - 432 c.

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
- 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/>
- 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. Course of lectures on the course «**Physiology and ethology of animals**».
2. Laboratory workshop on the course «**Physiology and ethology of animals**».

* - 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, Department of Veterinary
Medicine

Department position

Signed

Sotnikova E.D.

Name and surname.

HEAD OF EDUCATIONAL DEPARTMENT:

Department of Veterinary Medicine

Department position

Signed

Vatnikov Yu.A.

Name and surname.

HEAD OF

HIGHER EDUCATION PROGRAMME:

Director of the Department of Veterinary Medicine

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Vatnikov Yu.A.

Name and surname.