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Federal State Autonomous Educational Institution for Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
Agrarian and Technological Institute

WORKING COURSE SYLLABUS

Biology with basics ecology

Recommended by the Methodological Council for the Education Field:

36.05.01 Veterinary medicine

1. GOALS AND OBJECTIVES OF THE DISCIPLINE

The aim of the mastering the discipline "**Biology with basics ecology**" is to study the structural and functional features, reproduction, patterns of development and relationships with the environment of the main groups of animals in the comparative anatomical, comparative functional, phylogenetic and evolutionary aspects, taking into account their practical importance for the veterinarian.

2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The development of the discipline "**Biology with basics ecology**" is aimed at creating the following competencies (parts of competencies) for students:

Table 2.1. List of competencies formed by students during the development of the discipline (results of the development of the discipline)

Competence code	Competence	Previous Disciplines (Modules)
GPC-2	The ability to interpret and evaluate in professional activity the influence of natural, socio-economic, genetic and economic factors on the physiological state of the animal organism.	GPC-2.1 Knows the influence of natural, socio-economic, genetic and economic factors on the animal body
		GPC-2.2 Can establish the presence and validity of cause-effect relationships between the impact of certain etiological factors on the animal body and the development of diseases
		GPC-2.3 Knows the methods of preventive and therapeutic correction of the impact of unfavorable environmental factors that can cause deterioration of animal health
GPC-6	The ability to analyze, identify and assess the danger of the risk of the 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-infectious, infectious and invasive diseases, identify pathogens of infectious and invasive diseases in animals.
		GPC-6.3 Knows the patterns of occurrence and spread of diseases in animal populations, factors predisposing to illnesses and causes of possible complications.

3. COURSE IN HIGHER EDUCATION

The discipline "**Biology with basics ecology**" refers to the mandatory part of block B1 of the Educational Program of Higher Education.

As part of the Educational Program of Higher Education, students also master other disciplines and /or practices that contribute to achieving the planned results of mastering the discipline "**Biology with basics ecology**".

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

Competence code	Competence	Previous Disciplines (Modules)	Subsequent Disciplines (Modules)
GPC-2	The ability to interpret and evaluate in professional activity the influence of natural, socio-economic, genetic and economic factors on the physiological state of the animal organism.	-	Veterinary genetics Veterinary Microbiology and Mycology Virology and biotechnology Physiology and ethology of animals Breeding with the basics of private animal husbandry Hygiene of animals Feeding with the basics of forage production Pathological physiology Pathological anatomy and forensic veterinary examination Veterinary radiobiology Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-communicable diseases General and private surgery Parasitology and invasive diseases Epizootology and infectious diseases

			<p>Forensic veterinary medicine and animal necropsy Immunology General and Veterinary Ecology Veterinary sanitation Diseases of bees and fish Fodder plants Zoopsychology Horse diseases Diseases of Productive Animals Diseases of small pets Diseases of small pets Ophthalmology Dentistry Anesthesiology, resuscitation and intensive care</p>
GPC-6	The ability to analyze, identify and assess the danger of the risk of the occurrence and spread of diseases.	-	<p>Life safety Veterinary Microbiology and Mycology Virology and biotechnology Hygiene of animals Feeding animals with the basics of forage production Pathological anatomy and forensic veterinary examination Veterinary radiobiology Clinical diagnostics Instrumental diagnostic methods Toxicology Obstetrics, gynecology</p>

			<p>and andrology</p> <p>Internal non-communicable diseases</p> <p>General and private surgery</p> <p>Parasitology and invasive diseases</p> <p>Epizootology and infectious diseases</p> <p>Veterinary and sanitary examination</p> <p>Organization of veterinary affairs</p> <p>Forensic veterinary medicine and animal necropsy</p> <p>Introduction to the specialty</p> <p>General and Veterinary Ecology</p> <p>Veterinary sanitation</p> <p>Processing technology for livestock products</p> <p>Diseases of bees and fish</p> <p>Space technologies at the service of the agro-industrial complex</p> <p>Medicinal and poisonous plants</p> <p>Fodder plants</p> <p>Clinical laboratory diagnostics</p> <p>Laboratory diagnostics of infectious and invasive diseases</p> <p>Organization of state veterinary supervision</p> <p>Horse diseases</p> <p>Diseases of Productive Animals</p> <p>Diseases of small pets</p> <p>Diseases of small pets</p> <p>Ophthalmology</p> <p>Dentistry</p> <p>Anesthesiology, resuscitation and intensive care</p>
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4. COURSE WORKLOAD AND TRAINING ACTIVITIES

Course workload of the discipline "**Biology with basics ecology**" is 2 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				
			1	-	-	-	
Contact academic hours		36	36	-	-	-	
including							
Lectures		18	18	-	-	-	
Lab work		18	18	-	-	-	
Seminars (workshops/tutorials)		-	-	-	-	-	
Self-study		26	26	-	-	-	
Evaluation and assessment (exam/pass/fail grading)		10	10	-	-	-	
Course workload		Academic hour	72	72	-	-	-
		Credit unit	2	2	-	-	-

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

Types of academic activities		HOURS	Semesters				
			1	-	-	-	
Contact academic hours		13	13	-	-	-	
including							
Lectures		-	-	-	-	-	
Lab work		13	13	-	-	-	
Seminars (workshops/tutorials)		-	-	-	-	-	
Self-study		37	37	-	-	-	
Evaluation and assessment (exam/pass/fail grading)		22	22	-	-	-	
Course workload		Academic hour	72	72	-	-	-
		Credit unit	2	2	-	-	-

5. CONTENT OF THE DISCIPLINE

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

Name of the discipline section	Content of the section (topics)	Types of academic activities
Section 1. Invertebrate animals	Topic 1. Protozoa.	Lectures, Lab work
	Topic 1.2. Coelenterates.	Lectures, Lab work
	Topic 1.3. Flatworms.	Lectures, Lab work
	Topic 1.4. Roundworms.	Lectures, Lab work
	Topic 1.5. Ringed worms.	Lectures, Lab work
	Topic 1.6. Arthropods.	Lectures, Lab work
	Topic 1.7. Arachnids.	Lectures, Lab work
	Topic 1.8. Crustaceans.	Lectures, Lab work
	Topic 1.9. Insects.	Lectures, Lab work
	Topic 1.10. Shellfish.	Lectures, Lab work
Section 2. Vertebrate animals	Topic 2.1. Cartilaginous fish.	Lectures, Lab work
	Topic 2.2. Bony fish.	Lectures, Lab work
	Topic 2.3. Amphibians.	Lectures, Lab work
	Topic 2.4. Reptiles.	Lectures, Lab work
	Topic 2.5. Birds.	Lectures, Lab work
	Topic 2.6. Mammals.	Lectures, Lab work

6. CLASSROOM INFRASTRUCTURE AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Material and technical support of the discipline

<i>Classroom for Academic Activity Type</i>	<i>Equipping the classroom</i>	Specialized educational/laboratory equipment, software and materials for the development of the discipline (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.	-
Laboratory	An auditorium for laboratory work, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment.	-
Self-studies	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to an electronic information and educational environment.	-

7. RECOMMENDED SOURCES FOR COURSE STUDIES

Main reading:

1. Zoology with the basics of evolutionary teaching. Invertebrates : textbook / V.I. Podarueva, E.O. Rystsova, M.V. Bolshakova. - Electronic text data. - Moscow : PFUR, 2021. - 107 c.
2. Biology: textbook in 2 volumes. T. 2 / ed. by V.N. Yarygin. - Moscow : GEOTAR-Media, 2021. - 560 c. - Biology. T. 2 : textbook : in 2 vols / ed. by V. N. Yarygin. N. Yarygin. - Moscow : GEOTAR-Media, 2021.

Additional Reading:

1. Biology with the Basics of Ecology / A.S. Lukatkin, A.B. Ruchin, T.B. Silaeva, S.V. Aparin et al. - M.: Academy, 2011. - 400 c.
2. Biology guide to practical exercises / Markina VV, Oborotistov JD, Tatarenko-Kozmina TY, Kolomiichenko ME, and others; ed. by Markina VV. - Moscow: GEOTAR-Med, 2010. - 448 c.
3. Sych V. F. General biology. Moscow: Academic Project, 2008. -336 c
4. Stepanovskikh, A.S. Biological ecology: theory and practice : textbook / A.S. Stepanovskikh. - Moscow : Unity-Dana, 2015. - 791 c. : ill. - Bibliography in the book - ISBN 978-5-238-01482-1 ; The same [Electronic resource]. - URL: <http://biblioclub.ru/index.php?page=book&id=119176>
1. Medvedsky V. A., Medvedskaya T. V. Agricultural ecology. Moscow: The Ministry of Finance, 2010. -416 c

Resources of the Internet information and telecommunication network:

1. Electronic library system of RUDN and third-party Electronic library systems to which university students have access on the basis of concluded contracts:

- Electronic library system of RUDN - ELS RUDN <http://lib.rudn.ru/MegaPro/Web>
- ELS "University Library online" <http://www.biblioclub.ru>
- ELS Yurayt <http://www.biblio-online.ru>
- ELS "Student Consultant" www.studentlibrary.ru
- ELS "Lan" <http://e.lanbook.com/>
- ELS "Trinity Bridge" <http://www.trmost.com/>

2. Databases and search engines:

- electronic fund of legal and regulatory and technical documentation <http://docs.cntd.ru/>
- search engine Yandex <https://www.yandex.ru/>
- search engine Google <https://www.google.ru/>
- abstract database SCOPUS <http://www.elsevierscience.ru/products/scopus/>

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

1. A course of lectures on the discipline "**Biology with basics ecology**".
2. Laboratory workshop on the discipline "**Biology with basics ecology**".

* - All educational and methodological materials for independent work of students are placed in accordance with the current procedure on the discipline page in the **Telecommunication educational and Information System!**

8. MID-TERM ASSESSMENT

Evaluation materials and a point-rating system* for assessing the level of competence formation (part of competencies) based on the results of mastering the discipline "**Biology with basics ecology**" are presented in the Appendix to this Work Program of the discipline.

* - Assessment Materials and a Point Rating System are formed based on the requirements of the relevant local regulatory act of the RUDN.

DEVELOPER:

Associate Professor of the Department of Veterinary
Medicine

Position, Basic curriculum

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