

Документ подписан простой электронной подписью
Информация о владельце:
ФИО: Ястребов Олег Александрович
Должность: Ректор
Дата подписания: 09.06.2022 17:00:10
Уникальный программный ключ:
ca953a0120d891083f939673078ef1a989dae18a

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

WORKING COURSE SYLLABUS

Diseases of bees and entomophages

Recommended by the Methodological Council for the Education Field:

36.05.01 Veterinary medicine

1. GOALS AND OBJECTIVES OF THE DISCIPLINE

The aim of mastering the discipline "**Diseases of bees and entomophages**" is to prepare graduates for professional veterinary activities in the field of beekeeping, to carry out work in veterinary laboratories, beekeeping farms and specialized research institutes.

2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The development of the discipline "**Diseases of bees and entomophages**" 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)

Code	Competence	Indicators of competence accomplishment (within the discipline)
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 the specific features
		GPC-1.2 He s able to predict the expected violations of the biological status in case of suspected development of diseases
		GPC-1.3 He is able to determine the main indicators of the activity of individual body systems and draw conclusions about the presence of deviations from the standard values
		GPC-1.4 Has the skills of sampling biological fluids and tissues for research, performing laboratory tests, interpreting research results.
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 Has knowledge of the influence of natural, socio-economic, genetic and economic factors on the animal body.
		GPC-2.2 He is able to establish the presence and reliability of cause-and-effect relationships between the effects of certain etiological factors on the animal's body and the development of diseases.
		GPC-2.3 Possesses methods of preventive and curative correction of the effects of adverse environmental factors that can cause deterioration of animal health.
GPC -4	The ability to use methods of solving problems using modern equipment in the development	GPC-4.1 Possesses the conceptual and methodological apparatus of basic natural sciences at a level sufficient for full-

	of new technologies in professional activity and to use modern professional methodology for conducting experimental research and interpreting their results.	fledged professional activity at the modern level.
		GPC-4.2 He knows the methods of solving problems using modern equipment.
		GPC-4.3 He is ready to use modern methodology in the development and conduct of experimental research.
		GPC-4.4 Uses modern professional methodology in interpreting research results.
GPC -6	The ability to analyze, identify and assess the risk 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 He knows the patterns of the occurrence and spread of diseases in animal populations, factors predisposing to diseases and the causes of possible complications.
PC -2	The ability to conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the further research program, as well as in accordance with the plan of antiepidemiological measures, the plan of prevention of non-infectious animal diseases.	PC-2.1 He is able to conduct a general clinical study of animals of different species in order to establish a preliminary diagnosis and determine the further research program
		PC-2.2 He is able to conduct mass clinical studies of animals in accordance with the plan of antiepidemiological measures, the plan of prevention of non-infectious animal diseases
PC -3	Ability to develop animal research programs using special (instrumental) and laboratory methods.	PC-3.1 He is 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 detected pathology or control the course of the disease and the effectiveness of the prescribed treatment.
		PC-3.2 Capable of developing 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 He is able to diagnose patients of various types based on the analysis of anamnesis data, general, special (instrumental) and laboratory research methods.
		PC -5.2 He is able to predict the risks of diseases based on anamnestic data, the results of general, special (instrumental) and laboratory studies.
PC -6	The 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 He is able to develop recommendations on therapeutic and preventive manipulations to prevent diseases, the high probability of which was revealed during the study of the patient.
		PC-6.3 He is able to develop recommendations for carrying out preventive and curative measures based on the results of the examination of animals carried out as part of the medical examination.
PC -7	The ability to choose the necessary drugs of chemical and biological nature for the treatment of animals, taking into account their combined pharmacological effect on the body.	PC -7.1 He is able to choose medicines of chemical and biological nature necessary for the treatment of animals, guided by the principles of evidence-based medicine, taking into account their combined pharmacological effect on the body.
		PC-7.2 He is able to justify the prescription of a drug in a certain clinical case or the impossibility of using this drug in the situation under consideration.
		PC-7.3 He is able to calculate the dose, frequency and duration of the course of application of the drug 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 He is able to take into account drug interactions when prescribing a course of treatment to an animal already

		receiving medications and biologically active additives due to the presence of diseases identified earlier.
		PC-7.5 He is able to take into account economic, species and age characteristics, as well as the results of laboratory studies of the patient when choosing drugs for the treatment of the patient.
PC -15	Ability to organize preventive immunizations (vaccinations), therapeutic and preventive treatments of animals in accordance with the plan of antiepizootic measures.	<p>PC-15.1 He is able to make individual and group plans of preventive immunizations (vaccinations) taking into account the epizootic situation in the territory of the animals' stay, the plan of anti-epizootic measures, as well as state and regional veterinary and sanitary rules and requirements.</p> <p>PC-15.2 He is able to organize therapeutic and preventive treatment of animals in accordance with the plan of anti-epizootic measures, as well as, if necessary, taking into account the real epizootic situation in the places where animals stay, including in conditions of agricultural production.</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>PC-16.1 He is able to assess the impact of animal housing and feeding conditions on their health as part of the implementation of action plans for the prevention of animal diseases</p> <p>PC-16.2 He is 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</p> <p>PC-16.3 He is able to detect deviations from the plan of timing, types, quality of measures to prevent the occurrence of non-infectious animals</p> <p>PC-16.4 Take corrective measures to implement measures to prevent the occurrence of non-infectious animal diseases based on the results of control</p> <p>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</p>

PC -19	The 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 He is capable of performing autopsy of animal corpses using special tools and compliance with safety requirements.
		PC -19.3 He is able to establish the cause of death and a pathoanatomic diagnosis in accordance with generally accepted criteria and classifications, lists of animal diseases.
		PC-19.4 He is able to formalize the results of a postmortem diagnostic examination of an animal in the autopsy protocol.
PC -20	Ability to develop an annual plan of antiepzootic measures, a plan for the prevention of non-infectious animal diseases, a plan of veterinary and sanitary measures.	PC-20.1 Able to conduct epizootological examination of the organization, territory.
		PC-20.2 He is able to develop an annual plan of antiepzootic and antiparasitic measures, a plan for the prevention of non-infectious animal diseases, a plan of veterinary and sanitary measures.
		PC-20.3 He is able to analyze the effectiveness of measures for the prevention of animal diseases in order to improve them.
PC -22	Ability to organize measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of antiepzootic measures.	PC -22.1 He is able to assess the epizootic state of an organization (territory), identify risks and possible causes of epizootic foci, as well as factors affecting their spread in specific organizations, territories.
		PC-22.2 Able to choose and apply the most effective measures to protect the organization from the introduction of infectious and invasive diseases.
		PC-22.3 He is able to carry out operational control of the effectiveness of the activities carried out.
PC -23	The ability to analyze the effectiveness of measures for the prevention of animal diseases in order to improve them.	PC-23.1 He is capable of collecting and analyzing information, including veterinary statistics data, necessary to assess the effectiveness of preventive antiepzootic measures, prevention of non-infectious animal diseases, veterinary and sanitary measures.

		PC-23.2 Able to evaluate the effectiveness of preventive measures and methods of their implementation, including using special software.
		PC -23.3 He is able to make suggestions on the correction of measures for the prevention of animal diseases on the basis of the analysis carried out.
PC -24	Ability and willingness to promote veterinary knowledge, including in the field of prevention of animal diseases.	PC-24.1 He is able to set goals in the field of veterinary knowledge promotion, plan the strategy and tactics of upcoming events.
		PC-24.2 He is able to use computer and telecommunication facilities for the preparation and demonstration of materials used in the process of promoting veterinary knowledge.
		PC-24.3 He is able to conduct conversations, lectures, seminars for employees of the organization in order to explain the principles of work on the prevention of animal diseases.

3. COURSE IN HIGHER EDUCATION

The discipline "**Diseases of bees and entomophages**" belongs to the part formed by the participants of educational relations of the 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 "**Diseases of bees and entomophages**".

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 -1	The ability to determine the biological status and normative clinical indicators of organs and systems of the animal body.	Animal anatomy Cytology, histology and embryology Physiology and ethology of animals Pathological physiology Clinical diagnosis Pathological anatomy	Fish pathology and aquaculture Anesthesiology, intensive care and intensive care

		<p>Instrumental diagnostic methods Obstetrics, gynecology and andrology Immunology Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Veterinary and industrial laboratories with the basics of design</p>	
GPC-2	<p>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.</p>	<p>Biology with the basics of ecology Veterinary genetics Veterinary microbiology and mycology Virology and biotechnology Physiology and ethology of animals Breeding with the basics of private animal husbandry Animal health and welfare Pathological physiology Veterinary Radiobiology Pathological anatomy Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Forensic veterinary examination and autopsy of animals</p>	<p>Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Veterinary Ophthalmology Animal Dentistry</p>

		<p>Immunology General and veterinary ecology Veterinary sanitation Forage plants Zoopsychology Animal Health Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets</p>	
GPC -4	<p>The ability to use methods of solving problems using modern equipment in the development of new technologies in professional activity and to use modern professional methodology for conducting experimental research and interpreting their results.</p>	<p>Inorganic and analytical chemistry Organic Chemistry Biological physics Computer science Physical and colloidal chemistry Cytology, histology and embryology Biological chemistry Veterinary microbiology and mycology Virology and biotechnology Physiology and ethology of animals Breeding with the basics of private animal husbandry Pathological physiology Veterinary Radiobiology Clinical diagnosis Pathological anatomy Operative surgery with topographic anatomy Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery</p>	<p>Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive and reconstructive surgery Veterinary Ophthalmology Animal Dentistry</p>

		Parasitology and invasive diseases Epizootology and infectious diseases Mathematics Immunology Veterinary sanitation Technology of processing livestock products Medicinal and poisonous plants Forage plants Fundamentals of intellectual work Personality psychology and professional self- determination Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets	
GPC -6	The ability to analyze, identify and assess the risk of the risk of the occurrence and spread of diseases.	Biology with the basics of ecology Life safety Veterinary microbiology and mycology Virology and biotechnology Animal health and welfare Feeding animals with the basics of feed production Veterinary Radiobiology Clinical diagnosis Pathological anatomy Instrumental diagnostic methods Toxicology Obstetrics, gynecology	Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, intensive care and intensive care Veterinary Ophthalmology Animal Dentistry

		<p>and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Veterinary and sanitary examination Organization of veterinary business Forensic veterinary examination and autopsy of animals Introduction to the specialty General and veterinary ecology Veterinary sanitation Technology of processing livestock products Medicinal and poisonous plants Forage plants Animal Health Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Organization of state veterinary supervision Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets</p>	
PC -2	The ability to conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the further research program, as well as in	<p>Physiology and ethology of animals Pathological physiology Clinical diagnosis Pathological anatomy Obstetrics, gynecology and andrology</p>	<p>Fish pathology and aquaculture Anesthesiology, intensive care and intensive care</p>

	accordance with the plan of antiepidemiologic measures, the plan of prevention of non-infectious animal diseases.		
PC -3	Ability to develop animal research programs using special (instrumental) and laboratory methods.	<p>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 diagnosis Pathological anatomy Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epidemiology and infectious diseases Immunology Veterinary deontology Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Veterinary and industrial laboratories with the basics of design Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets</p>	<p>Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive and reconstructive surgery Veterinary Ophthalmology Animal Dentistry</p>

PC -5	The ability to make a diagnosis based on the analysis of anamnesis data, general, special (instrumental) and laboratory research methods.	<p>Veterinary genetics Cytology, histology and embryology Physiology and ethology of animals Breeding with the basics of private animal husbandry Feeding animals with the basics of feed production Pathological physiology Clinical diagnosis Pathological anatomy Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Forensic veterinary examination and autopsy of animals Zoopsychology Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets</p>	<p>Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive and reconstructive surgery Veterinary Ophthalmology Animal Dentistry</p>
PC -6	The ability to develop a treatment plan for animals based on the established diagnosis and individual characteristics of animals.	<p>Veterinary genetics Veterinary microbiology and mycology Virology and biotechnology Pathological physiology Veterinary Pharmacology Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases</p>	<p>Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive and reconstructive</p>

		<p>General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Mathematics Immunology Zoopsychology Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets</p>	<p>surgery Veterinary Ophthalmology Animal Dentistry</p>
PC -7	<p>The ability to choose the necessary drugs of chemical and biological nature for the treatment of animals, taking into account their combined pharmacological effect on the body.</p>	<p>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-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Medicinal and poisonous plants Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets</p>	<p>Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, intensive care and intensive care Dermatology Cardiology Endocrinology Nephrology Veterinary Ophthalmology Animal Dentistry</p>

PC -15	Ability to organize preventive immunizations (vaccinations), therapeutic and preventive treatments of animals in accordance with the plan of anti-epizootic measures.	Virology and biotechnology Parasitology and invasive diseases Epizootology and infectious diseases Immunology Veterinary sanitation	Fish pathology and aquaculture
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	Veterinary genetics Life safety Physiology and ethology of animals Breeding with the basics of private animal husbandry Animal health and welfare Feeding animals with the basics of feed production Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Organization of veterinary business Fundamentals of Economics and Management Economics and organization of agricultural production Medicinal and poisonous plants Forage plants Zoopsychology Animal Health Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pets	Fish pathology and aquaculture Diseases of exotic animals Veterinary Ophthalmology Animal Dentistry
PC -19	The ability to perform post-mortem diagnostic examination of animals in	Cytology, histology and embryology Life safety	Fish pathology and aquaculture Diseases of exotic

	order to establish pathological processes, diseases, causes of death.	Pathological anatomy Toxicology Obstetrics, gynecology and andrology Internal non-infectious 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 invasive diseases Diseases of horses Diseases of productive animals Diseases of small pets	animals Dermatology Cardiology Endocrinology Nephrology Veterinary Ophthalmology Animal Dentistry
PC -20	Ability to develop an annual plan of anti-epizootic measures, a plan for the prevention of non-infectious animal diseases, a plan of veterinary and sanitary measures.	Veterinary microbiology and mycology Animal health and welfare Feeding animals with the basics of feed production Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Organization of veterinary business Fundamentals of Economics and Management	Fish pathology and aquaculture

		<p>Veterinary sanitation Economics and organization of agricultural production Animal Health</p>	
PC -22	<p>Ability to organize measures to protect the organization from the introduction of infectious and invasive diseases in accordance with the plan of antiepidemiological measures.</p>	<p>Life safety Veterinary microbiology and mycology Virology and biotechnology Animal health and welfare Veterinary Pharmacology Private Veterinary surgery Parasitology and invasive diseases Epidemiology and infectious diseases Organization of veterinary business General and veterinary ecology Veterinary sanitation Technology of processing livestock products Animal Health Laboratory diagnostics of infectious and invasive diseases Organization of state veterinary supervision</p>	<p>Fish pathology and aquaculture</p>
PC -23	<p>The ability to analyze the effectiveness of measures for the prevention of animal diseases in order to improve them.</p>	<p>Breeding with the basics of private animal husbandry Animal health and welfare Toxicology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epidemiology and</p>	<p>Fish pathology and aquaculture</p>

		<p>infectious diseases Veterinary and sanitary examination Organization of veterinary business Forensic veterinary examination and autopsy of animals Fundamentals of Economics and Management Veterinary sanitation Economics and organization of agricultural production Animal Health Organization of state veterinary supervision</p>	
PC -24	<p>Ability and willingness to promote veterinary knowledge, including in the field of prevention of animal diseases.</p>	<p>Physiology and ethology of animals Breeding with the basics of private animal husbandry Animal health and welfare Feeding animals with the basics of feed production Pathological physiology Pathological anatomy Toxicology Obstetrics, gynecology and andrology Internal non-infectious diseases General surgery Private Veterinary surgery Parasitology and invasive diseases Epizootology and infectious diseases Fundamentals of rhetoric and communication Introduction to the specialty General and veterinary</p>	<p>Fish pathology and aquaculture Diseases of exotic animals Dermatology Cardiology Endocrinology Nephrology Reconstructive and reconstructive surgery Veterinary Ophthalmology Animal Dentistry Foreign language for special purposes Russian for special purposes Foreign language. Translation of special texts Russian language. Translation of special texts Foreign language. Professional communications Russian language. Professional communications</p>

		ecology Veterinary sanitation Veterinary deontology Economics and organization of agricultural production Medicinal and poisonous plants Forage plants Zoopsychology Animal Health Diseases of horses Diseases of productive animals Diseases of small pets Diseases of small pet	
--	--	--	--

4. COURSE WORKLOAD AND TRAINING ACTIVITIES

Course workload of the discipline "**Diseases of bees and entomophages**" is 3 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				
			9	-	-	-	
Contact academic hours		54	54	-	-	-	
including							
Lectures		18	18	-	-	-	
Lab work		36	36	-	-	-	
Seminars (workshops/tutorials)		-	-	-	-	-	
Self-study		38	38	-	-	-	
Evaluation and assessment (exam/pass/fail grading)		16	16	-	-	-	
Course workload		Academic hour	108	108	-	-	-
		Credit unit	3	3	-	-	-

*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			
			A	-	-	-
Contact academic hours		72	72	-	-	-
including						

Lectures		18	18	-	-	-
Lab work		54	54	-	-	-
Seminars (workshops/tutorials)		-	-	-	-	-
Self-study		26	26	-	-	-
Evaluation and assessment (exam/pass/fail grading)		10	10	-	-	-
Course workload	Academic hour	108	108	-	-	-
	Credit unit	3	3	-	-	-

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. General regulatory documents on bee diseases	Topic 1.1 General regulatory documents on bee diseases.	Lectures, Lab work.
	Topic 1.2 Significance for the State.	Lectures, Lab work.
Section 2. Bee products	Topic 2.1 Propolis.	Lectures, Lab work.
	Topic 2.2 Wax.	Lectures, Lab work.
	Topic 2.3 Bee royal jelly.	Lectures, Lab work.
	Topic 2.4 Bee venom.	Lectures, Lab work.
	Topic 2.5 Drone homogenate.	Lectures, Lab work.
Section 3. Biology of the bee family	Topic 3.1 Bee breeds.	Lectures, Lab work.
	Topic 3.2 The bee family.	Lectures, Lab work.
	Topic 3.3 Development of the worker bee, queen bee and drone.	Lectures, Lab work.
Section 4. Bee Virosis	Topic 4.1 Baggy brood;	Lectures, Lab work.
	Topic 4.2 Chronic viral paralysis	Lectures, Lab work.
	Topic 4.3 Acute paralysis of bees; filamentovirosis	Lectures, Lab work.
	Topic 4.4 Iridescensvirosis	Lectures, Lab work.

	Topic 4.5 Disease "black queen bee"	Lectures, Lab work.
	Topic 4.6 Disease "darkened (cloudy) wing"	Lectures, Lab work.
	Topic 4.7 Other viros.	Lectures, Lab work.
Section 5. Bacterioses and mycoses of bees	Topic 5.1 American Rotten	Lectures, Lab work.
	Topic 5.2 European rotten	Lectures, Lab work.
	Topic 5.3 Paragnilets	Lectures, Lab work.
	Topic 5.4 Powdery brood	Lectures, Lab work.
	Topic 5.5 Bee septimation	Lectures, Lab work.
	Topic 5.6 Gafniosis	Lectures, Lab work.
	Topic 5.7 Other bacterioses.	Lectures, Lab work.
Section 6. Invasive bee diseases	Topic 6.1 Varroosis, other diseases	Lectures, Lab work.
Section 7. Non-infectious diseases of bees	Topic 7.1 Carbohydrate starvation.	Lectures, Lab work.
	Topic 7.2 Protein starvation.	Lectures, Lab work.
	Topic 7.3 Case toxicosis.	Lectures, Lab work.
	Topic 7.4 Chemical toxicosis.	Lectures, Lab work.
	Topic 7.5 Genetic lethality.	Lectures, Lab work.
	Topic 7.6 Frozen brood.	Lectures, Lab work.
Section 8. Veterinary and sanitary measures at the apiary	Topic 8.1 Basic preventive measures.	Lectures, Lab work.
Section 9. Regulatory documents on bee diseases	Topic 9.1 Regulatory documents on bee diseases.	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. Beekeeping : Textbook / N. I. Krivtsov [et al.]. - St. Petersburg : Lan, 2021. - 388 p. : <https://e.lanbook.com/book/153913>
2. Maslennikova V.I. : Diseases and pests of bees : textbook / V.I. Maslennikova. – Moscow : Rosentomofauna, 2020. – 302 p.

Additional Reading:

1. Kaplich, V. M. Beekeeping: Textbook / V. M. Kaplich, I. S. Seryakov, N. P. Kovbasa – M. : New Knowledge, 2014 – 392 p. <https://e.lanbook.com/book/64917>
2. Kozin, R. B. Biology of the honey bee: A textbook / R. B. Kozin, N. V. Irenkova. - St. Petersburg : Lan, 2007. - 320 p. <http://lib.rudn.ru/ProtectedView/Book/ViewBook/5672>
3. Kozin, R. B. Practicum on beekeeping: A textbook / R. B. Kozin, N. V. Irenkova, V. I. Lebedev. - 2nd ed. . - St. Petersburg : Lan, 2005. - 224 p. <http://lib.rudn.ru/ProtectedView/Book/ViewBook/5673>
4. Kozin, R. B. Beekeeping : Textbook / R. B. Kozin, N. I. Krivtsov, V. I. Lebedev, V. M. Maslennikova - 1st ed. – St. Petersburg : Lan, 2010. – 448 p. <https://e.lanbook.com/book/577>

5. Osintseva, L. A. Technology, quality indicators, safety and commodity evaluation of honey : Textbook / L. A. Osintseva – Novosibirsk : Novosibirsk State Agrarian University, 2012 – 132 p. <https://e.lanbook.com/book/4571?category=43798>

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://eZlanbook.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 "**Diseases of bees and entomophages**".
2. Laboratory workshop on the discipline "**Diseases of bees and entomophages**".

* - 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 "**Diseases of bees and entomophages**" 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

Signature

Drukovsky S.G.

Full name.

HEAD OF THE DEPARTMENT:

Department of Veterinary Medicine

Name Basic Curriculum

Signature

Vatnikov Yu.A.

Full name.

HEAD OF THE HIGHER EDUCATION PROGRAM:

Director of the Department of Veterinary Medicine

Position, Basic curriculum

Signature

Vatnikov Yu.A.

Full name