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

WORKING COURSE SYLLABUS

Medicinal and poisonous plants

Recommended by the Methodological Council for the Education Field:

36.05.01 Veterinary medicine

2022 г.

1. GOALS AND OBJECTIVES OF THE DISCIPLINE

The aim of mastering the discipline "**Medicinal and poisonous plants**" is to provide students with knowledge about the most common medicinal and poisonous plants, the main active substances of plants, the use of medicinal plants in veterinary practice.

In order to achieve this goal in the process of teaching the course the following main tasks are solved:

- The study of the structure of plants at the level of morphology of vegetative and generative organs, taking into account their evolution;
- Study of external features of the most common medicinal and poisonous plants of the middle belt of Russia;
- getting acquainted with the basics of modern classification and international nomenclature of plants;
- to get an idea of the main active substances of plants and their influence on the animal organism;
- getting ideas about the main signs of poisoning by poisonous plants and methods of first aid in case of poisoning by poisonous plants;
- getting ideas about the use of medicinal plant raw materials in pharmacy and veterinary medicine.

2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The development of the discipline "**Medicinal and poisonous plants**" 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)
UK -12	The ability to search for the necessary sources of information and data, to perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; to evaluate information, its reliability, build logical conclusions based on incoming information and data	UK -12.1 Searches for the necessary sources of information and data, perceives, analyzes, remembers and transmits information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems
		UK-12.2 Evaluates information, its reliability, builds logical conclusions based on incoming information and data

GPC -4	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.	GPC-4.1 Possesses the conceptual and methodological apparatus of basic natural sciences at a level sufficient for full-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 -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 -13	Ability to develop recommendations for special	PC-13.1 He is able to justify the appointment of special feeding to an animal for therapeutic purposes in various diseases;

	feeding of sick animals for therapeutic purposes.	<p>PC-13.2 He is able to recommend the approximate composition of therapeutic diets, the desired ratio of nutrients, the presence of special additives and components that enhance the therapeutic effect of the diet;</p> <p>PC-13.3 He is able to use special programs and databases for the selection of industrial therapeutic diets and dietary supplements, as well as for the compilation of individual therapeutic diets for animals of various species.</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 -24	Ability and willingness to promote veterinary knowledge, including in the field of prevention of animal diseases.	<p>PC-24.1 He is able to set goals in the field of veterinary knowledge promotion, plan the strategy and tactics of upcoming events.</p> <p>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.</p> <p>PC-24.3 He is able to conduct conversations, lectures, seminars for employees of the organization in order to</p>

		explain the principles of work on the prevention of animal diseases.
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3. COURSE IN HIGHER EDUCATION

The discipline "**Medicinal and poisonous plants**" 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 "**Medicinal and poisonous plants**".

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)
UK-12	The ability to search for the necessary sources of information and data, to perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; to evaluate information, its reliability, build logical conclusions based on incoming information and data	Law science Computer science Philosophy Life safety Instrumental diagnostic methods Organization of veterinary affairs Forensic veterinary examination and dissection of animals Maths Veterinary deontology	The basics of intellectual work Personality psychology and professional self-determination Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Organization of state veterinary supervision Veterinary and industrial laboratories with design basics Biometrics in veterinary medicine Basics of social and legal knowledge Space technologies at the service of the agro-industrial complex
GPC -4	The ability to use methods of solving problems using	Inorganic and analytical chemistry	Fodder plants

	<p>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>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 diagnostics Pathological anatomy Operative surgery with topographic anatomy Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal diseases General surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Maths Immunology Veterinary sanitation Processing technology for livestock products</p>	<p>The basics of intellectual work Personality psychology and professional self- determination Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Horse diseases Diseases of Productive Animals Diseases of small pets Болезни мелких домашних животных Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive surgery Veterinary ophthalmology Animal Dentistry</p>
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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 forage production Veterinary radiobiology Clinical diagnostics Pathological anatomy Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal diseases General surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Veterinary and sanitary examination Organization of veterinary affairs Forensic veterinary examination and dissection of animals Introduction to the specialty General and Veterinary Ecology Veterinary sanitation Processing technology for livestock products	Fodder plants Animal health and welfare Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Organization of state veterinary supervision Horse diseases Diseases of Productive Animals Diseases of small pets Болезни мелких домашних животных Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, resuscitation and intensive care Veterinary ophthalmology Animal Dentistry
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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.	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 diseases General surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases	Horse diseases Diseases of Productive Animals Diseases of small pets Болезни мелких домашних животных Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology Nephrology Veterinary ophthalmology Animal Dentistry
PC -13	Ability to develop recommendations for special feeding of sick animals for therapeutic purposes.	Physiology and ethology of animals Feeding animals with the basics of forage production Pathological physiology Internal diseases General surgery Private Veterinary Surgery	Fodder plants Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology Nephrology
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	Veterinary genetics Life safety Physiology and ethology of animals Breeding with the basics of private animal husbandry Animal health and welfare	Fodder plants Zoopsychology Здоровье и благополучие животных Horse diseases Diseases of Productive Animals Diseases of small pets

	diseases	Feeding animals with the basics of forage production Obstetrics, gynecology and andrology Internal diseases General surgery Private Veterinary Surgery Organization of veterinary affairs Fundamentals of Economics and Management Economics and organization of agricultural production	Болезни мелких домашних животных Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Veterinary ophthalmology Animal Dentistry
PC -24	Ability and willingness to promote veterinary knowledge, including in the field of prevention of animal diseases.	Physiology and ethology of animals Breeding with the basics of private animal husbandry Animal health and welfare Feeding animals with the basics of forage production Pathological physiology Pathological anatomy Toxicology Obstetrics, gynecology and andrology Internal diseases General surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Basics of Rhetoric and Communication	Fodder plants Zoopsychology Здоровье и благополучие животных Horse diseases Diseases of Productive Animals Diseases of small pets Болезни мелких домашних животных Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Dermatology Cardiology Endocrinology Nephrology Reconstructive surgery Veterinary ophthalmology Animal Dentistry

		Introduction to the specialty General and Veterinary Ecology Veterinary sanitation Veterinary deontology Economics and organization of agricultural production	Foreign language for special purposes Russian language for special purposes Foreign language. Translation of special texts Russian language. Translation of special texts Foreign language. Professional communications Russian language. Professional communications
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4. COURSE WORKLOAD AND TRAINING ACTIVITIES

Course workload of the discipline "**Medicinal and poisonous plants**" 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				
			2	-	-	-	
Contact academic hours		36	36	-	-	-	
including							
Lectures		-	-	-	-	-	
Lab work		-	-	-	-	-	
Seminars (workshops/tutorials)		36	36	-	-	-	
Self-study		30	30	-	-	-	
Evaluation and assessment (exam/pass/fail grading)		6	6	-	-	-	
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			
			2	-	-	-
Contact academic hours		18	18	-	-	-
including						
Lectures		-	-	-	-	-
Lab work		-	-	-	-	-

Seminars (workshops/tutorials)		18	18	-	-	-
Self-study		44	44	-	-	-
Evaluation and assessment (exam/pass/fail grading)		10	10	-	-	-
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. Introduction.	Topic 1.1. The importance of green plants in nature and human life. Protection of the plant world. Objectives of the course "Medicinal and poisonous plants. The history of the study of medicinal plants.	Seminar classes
Section 2. Basics of Botany	Topic 2.1. Basic concepts and definitions of botany. - Sections and tasks of botany; directions, methods and basic concepts of botany.	Seminar classes
	Topic 2.2. General characteristics of lower and higher plants: - The main features of higher plants	Seminar classes
Section 3. Plant morphology	Topic 3.1. Root: concept, structure and functions. - The functions of the root; - Differentiation of the roots; - metamorphosis of the root.	Seminar classes
	Topic 3.2. The shoot as a single organ: - the concept of the shoot and its functions; - types of shoots; morphology of the shoot (nodes, internodes); - metamorphosis of the shoot.	Seminar classes
	Topic 3.3. Leaf. - morphological structure and functions of the leaf; - classification of leaves; types of leaf veins; - leaf metamorphosis.	Seminar classes

Section 4. Plant systematics	Topic 4.1. Plant systematics as a science. - The concept of species in plants; - The system of botanical taxonomic categories; - lower and higher plants.	Seminar classes
	Topic 4.2. Algae. Classification. The importance of algae in nature. Algae used in pharmaceutical, food industry, animal feed production.	Seminar classes
	Topic 4.3. Higher spore plants. Medicinal and poisonous plants of the divisions: Plaunaceae, Cattailaceae, Fernaceae.	Seminar classes
	Topic 4.4. Division of Holosemens. Medicinal and poisonous plants.	Seminar classes
	Topic 4.5. Division of Cloversperms. - Division of flowering plants into classes. Comparative characteristics of monocotyledonous and dicotyledonous classes.	Seminar classes
	Topic 4.6. Families of flowering plants. General characteristics of each family. Medicinal and poisonous plants of the families: - Buttercups (Ranunculaceae); - Rosaceae; - Legumes (Fabaceae); - Lamiaceae; - Celery (Apiaceae); - Solanaceae; - Asteraceae; - Liliaceae; - Poaceae.	Seminar classes
Section 5. Medicinal plants.	Topic 5.1. General information about medicinal plants, their botanical characteristics.	Seminar classes
	Topic 5.2. Physical, chemical and biological properties of biologically active substances.	Seminar classes
	Topic 5.3. The content of the main biologically active substances in medicinal plants, the effect on the animal body;	Seminar classes
	Topic 5.4. Technology of preparation and drying of raw materials and its chemical composition;	Seminar classes

	Topic 5.5. Applications in medicine and veterinary medicine based on the latest achievements of science.	Seminar classes
Section 6. Poisonous Plants.	Topic 6.1. General information about poisonous plants, their botanical characteristics. Prevention of poisoning.	Seminar classes
	Theme 6.2 Main signs of poisoning by poisonous plants; - Ways to provide first aid in case of poisoning by poisonous plants;	Seminar classes
	Topic 6.3. poisonous plants for mammals; poisonous plants for bees and hydrobionts; plants that give poisonous properties to honey, milk and other animal products.	Seminar classes

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)
Seminary	An auditorium for conducting seminar-type classes, group and individual consultations, ongoing monitoring and interim certification, equipped with a set of specialized furniture and multimedia presentation equipment.	- <i>Herbarium Collections.</i> - <i>Computer.</i> - <i>Multimedia projector</i> - <i>Botanical preparations.</i> - <i>Wet preparations of plant organs;</i> - <i>Botanical moulages.</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. RECOMMENDED SOURCES FOR COURSE STUDIES

Main reading:

1. AV Korobov, O.S. Bushukina, MN Sbitneva. Medicinal and poisonous plants in veterinary medicine. Textbook. Saint-Petersburg: Lan' Publishing House, 2007. - 256 c. ill.
2. M.E. Pavlova, A.A. Terekhin. Morphology of flowering plants. Textbook on botany M,: RUDN Publishing House, 2015. - 62 c. ill.
3. A.A. Terekhin, M.E. Pavlova, I. Istomina. Practicum on the course of botany. Moscow: RUDN Publishing House, 2019. Part 1- 104 p.: ill. Part 2- 108 p.: ill.
4. Gubanov I.A. et al. Identifier of vascular plants of the center of European Russia. - Moscow: Argus, 1995. - 560 c. ill.
5. A
6. A.A. Terekhin, M.E. Pavlova, Surkov V.A. Poisonous plants. Textbook M,: Izd vo RUDN, 2015. - 80 c.
7. Yakovlev G.P., Chelombitko V.A. Botany. - SPb.: SPKhFA, 2003. - 415 p.:ill.

Additional Reading:

1. Novikov V.S., Gubanov I.A. Popular atlas-detector. Wild plants. - Moscow, Drofa, 2002. - 416 p.: ill.
2. P

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 "**Medicinal and poisonous plants**".
2. Seminary workshop on the discipline "**Medicinal and poisonous plants**".

* - 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 "**Medicinal and poisonous plants**" are presented in the Appendix to this Work Program of the discipline.

