



SYLLABUS OF DISCIPLINE «Veterinary pharmacology»

Educational lever - Master

Specialty 211 Veterinary medicine Ветеринарна медицина

Educational program Veterinary medicine

Year of training (course) 3 (full term of study), **semester** 5-6

Form of study full-time

Quantity of ECTS credits 5

Language English

Lecturer of course

Contact information (e-mail) of lecturer

Page of course in eLearn

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<https://elearn.nubip.edu.ua/course/view.php?id=2710>

DESCRIPTION OF THE DISCIPLINE

Pharmacology is an experimental science that studies changes in the living organism under the influence of drugs for their use in the practice of veterinary medicine and the search for new effective drugs.

The main purpose of the discipline is to study the pharmacodynamics of basic drugs, namely the reaction of a living organism to their influence in the absence of disease; to study pharmacokinetics, namely the basic laws of absorption, distribution, biotransformation and excretion of drugs from the body; to get some knowledge of pharmaceutical disciplines : pharmacognosy, pharmaceutical chemistry, technology of manufacturing dosage forms and recipe. All this knowledge is necessary for the ultimate goal of the discipline in the system of doctor (master) of veterinary medicine - pharmacotherapy, pharmacoprophylaxis and pharmacostimulation, which will allow a specialist from a large number of drugs to choose the most necessary for effective treatment of animals, prevention of disease, stimulation of physiological functions.

Acquisition of competencies. Integral competence : The ability to solve complex tasks and problems in the field of veterinary medicine, which involves conducting research and/or implementing innovations and is characterized by the uncertainty of conditions and requirements.

General competencies : ability to apply knowledge in practical situations; the ability to conduct research at the appropriate level; the ability to make reasonable decisions; the desire to preserve the environment. Professional (special) competencies : the ability to use tools, special devices, devices, laboratory equipment and other technical means to carry out the necessary manipulations during professional activities; the ability to plan, organize and implement measures for the treatment of animals of different classes and species that are sick with non-communicable, infectious and invasive diseases; the ability to develop strategies for the prevention of diseases of various etiologies; the ability to use specialized software to perform professional tasks; the ability to organize, implement and control the flow of documents during professional activities.

Program learning outcomes : know and correctly use the terminology of veterinary medicine; use information from domestic and foreign sources to develop diagnostic, treatment and business strategies; to determine the essence of physico-chemical and biological processes that occur in the body of animals in normal and pathological conditions; collect anamnestic data during registration and examination of animals, make decisions regarding the choice of effective methods of diagnosis, treatment and prevention of animal diseases; to develop quarantine and health measures, methods of therapy, prevention, diagnosis and treatment of diseases of various etiologies; formulate conclusions regarding the effectiveness of selected methods and means of keeping, feeding and treating animals, prevention of contagious and non-contagious diseases, as well as

production and technological processes at enterprises for keeping, breeding or exploiting animals of various classes and species; monitor the causes of the spread of diseases of various etiologies and biological pollution of the environment with livestock waste, as well as veterinary materials and means; develop measures aimed at protecting the population from diseases common to animals and humans; know the rules of storage of various pharmaceuticals and biological preparations, ways of their enteral or parenteral use, understand the mechanism of their action, interaction and complex action on the animal body; to carry out educational activities among industry workers and the population.

STRUCTURE OF THE COURSE

Topic	Hours (lectures / laboratory / independent)	Results	Tasks	Evaluation
Semester 1				
Module 1				
Topic 1 Veterinary pharmacology and its tasks. History of pharmacology Pharmacotherapy. Pharmacokinetics. Ways of introducing drugs into the animal's body	2	Know the subject and objectives of veterinary pharmacology. Understand the concepts of pharmacotherapy and pharmacokinetics. Distinguish ways of introducing drugs into the animal's body	Writing of the essay. Execution of the independent work	Up to 1 point for the essay; up to 1 point for the independent work
Topic 2 Veterinary recipe. The structure of recipes. Pharmacopoeia. Ways to write recipes. Measures of mass and volume in the recipe. Principles of dosing of drugs. Pharmacy. Storage of veterinary drugs ⁴	4	Know the subject of veterinary prescription, the principles of dosing of drugs and the purpose of the pharmacopoeia and pharmacy. Understand the structure of the recipe. Write recipes in different ways	Execution of the laboratory work	Up to 10 points for the laboratory works
Topic 3 Physicochemical factors of drug transport across cell membranes and their distribution in animals. Biotransformation of drugs and their excretion from the body	2	Analyze the physicochemical factors of drug transport across cell membranes and their distribution in the body. Understand the biotransformation of drugs and their	Writing of the essay	Up to 1 point for the essay

		excretion from the body		
Topic 4 Dry dosage forms: powders, dusts, tablets, pills, briquettes	2	Know the features of solid dosage forms. Be able to write recipes	Execution of the laboratory work	Up to 10 points for the laboratory work
Topic 5 Mild dosage forms: boluses, pills, ointments, liniments, suppositories, pastes	2	Know the features of mild dosage forms. Be able to write recipes	Execution of the laboratory work	Up to 10 points for the laboratory work
Topic 6 Pharmacodynamics. Types of action of medicinal substances. Long-term effects of drugs. The mechanism of action of drugs.	2	Distinguish between types of action and long-term effects in the action of drugs. Understand the basics of pharmacodynamics and mechanism of action of drugs	Writing of the essay	Up to 1 point for the essay
Topic 7 Liquid dosage forms: solutions, mixtures, emulsions, suspensions, mucus, syrups, infusions, decoctions, tinctures	2	Know the features of liquid dosage forms. Be able to write recipes	Execution of the laboratory work	Up to 10 points for the laboratory work
Topic 8 Writing of recipes	5	Know the features of different dosage forms. Be able to write recipes	Execution of the independent work	Up to 20 points for the independent work
Topic 9 Factors influencing the action and pharmacological activity of drugs. Features of pharmacological action of drugs in case of repeated use. Interaction of drugs	2	Analyze the factors influencing the action and pharmacological activity of drugs. Know the features of the drug when re-used	Writing of the essay	Up to 1 point for the essay
Topic 10 Pharmacy workshop	2	Know the features of different dosage forms. Be able to make them and write a recipe	Preparation of dosage forms and prescriptions	Up to 10 points for doing the tasks
Modular control. Colloquium 1	2	Use the acquired knowledge when doing tasks	Doing of the test tasks	Up to 30 points for the tests
Module 2				
Topic 11	2/2/2	Know the drugs that act mainly on the	Writing of the essay.	Up to 1 point for the essay, Up to

Drugs that act mainly on the central nervous system. Drugs for anesthesia. The mechanism of action of anesthetics. Stages, levels and types of anesthesia. Drugs for inhalation anesthesia		central nervous system and means for inhalation and non-inhalation anesthesia. Understand the mechanism of their action. Distinguish stages, levels and types of general anesthesia	Execution of the laboratory and independent works	10 points for the laboratory work, up to 10 points for the independent work
Topic 12 Drugs for non-inhalation anesthesia. Psychotropic substances (sedatives, neuroleptics and tranquilizers)	2/2	Know sedatives, neuroleptics and tranquilizers. Understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory work	Up to 1 point for the essay, up to 20 points for the laboratory work
Topic 13 Analgesics. Non-narcotic analgesics. Narcotic analgesics (non-steroidal anti-inflammatory drugs - NSAIDs)	2/2/2	Know narcotic and non-narcotic analgesics. Understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 20 points for the laboratory and independent work
Topic 14 Drugs that stimulate the function of the central nervous system. Psychostimulants. Analeptics. General tonics.	2/2/2	Know the means of stimulating the function of the central nervous system. Understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 10 points for the laboratory work, up to 10 points for the independent work
Modular control. Colloquium 2	2	Use the acquired knowledge when doing tasks	Doing of the test tasks	Up to 30 points for the tests
Module 3				
Topic 15 Drugs that act mainly on the peripheral nervous system. Classification. Drugs that suppress the function of afferent nerves. Local anesthetics (requirements, classification, mechanism of action). Types of local	2/2/2	Know the classification of drugs that act mainly on the peripheral nervous system and drugs that suppress the function of afferent nerves. Understand the requirements and mechanism of action of local anesthetics. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 20 points for the laboratory and independent works

anesthesia. Characteristics of drugs				
Topic 16 Drugs that protect sensitive nerve endings from irritation. Emollients, enveloping drugs, binders and adsorbents	2/2/2	Know the substances that protect sensitive nerve endings, understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 10 points for the laboratory and independent works
Topic 17 Drugs that stimulate sensitive nerve endings. Irritants. Essential oils. Vomiting, ruminating and expectorants.	2/2	Know the classification of drugs that stimulate sensitive nerve endings and substances that protect sensitive nerve endings, understand the mechanism of their action.	Writing of the essay. Execution of the laboratory work	Up to 1 point for the essay, up to 10 points for the laboratory work
Topic 18 Laxatives. Bitters	2/2	Know the bitters, laxatives, cholagogues, their classification. Understand the mechanism of their action	Execution of the laboratory and independent works	Up to 10 points for the laboratory and independent works
Topic 19 Drugs that affect the efferent nerves. Anatomical and physiological features of efferent nerves. Synapse structure. M- and H- cholinomimetics of direct action. M- and H- cholinomimetics of indirect action. M- cholinomimetics. H- cholinomimetics. Drugs of cholinolytic action. Classification of cholinolytic agents. M-cholinolytic agents. H-cholinolytic agents. Muscle relaxants	4/8/6	Know the classification and mechanism of action of drugs that act on the efferent nerves Understand the anatomical and physiological features of the efferent nerves and the structure of the synapse. know the drugs of cholinomimetic and cholinolytic action, understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 2 points for the essay, up to 20 points for the laboratory and independent works
Topic 20 Drugs of adrenomimetic and adrenolytic action. Adrenomimetic drugs	2/2/2	Know the drugs of adrenomimetic and adrenolytic action, antihistamines and understand the	Writing of the essay. Execution of the laboratory and	Up to 1 point for the essay, up to 20 points for the laboratory and

of direct and indirect action. Adrenolytic agents. Antihistamines		mechanism of their action. Be able to write recipes	independent works	independent works
Modular control. Colloquium 3	2	Use the acquired knowledge when doing tasks	Doing of the test tasks	Up to 30 points for tests
Total in the semester 1				70
Test				30
Total for the course				100
Semester 2				
Module 4				
Topic 24 Drugs acting on the cardiovascular system. Cardiac glycosides. Drugs that normalize heart rate. Antispasmodics	2/2/2	Know the drugs acting on the cardiovascular system, the cardiac glycosides and the drugs that normalize heart rate; understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 20 points for the laboratory and independent works
Topic 25 Drugs acting on (hemostasis) blood clotting processes. Blood substitutes. Drugs that affect immune processes	2/2/2	Know the drugs acting on (hemostasis) blood clotting processes, blood substitutes and the drugs that affect immune processes; understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 20 points for the laboratory and independent works
Topic 26 Diuretics (diuretics). Drugs that stimulate liver function (cholagogues). Drugs that affect the tone and contraction of the uterus	2/2	Know the diuretics (diuretics), the drugs that stimulate liver function (cholagogues), the drugs that affect the tone and contraction of the uterus; understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory work	Up to 1 point for the essay, up to 20 points for the laboratory work
Topic 27 Drugs that regulate metabolic processes. Vitamins and vitamin preparations: classification,	2/2/2	Know the drugs that regulate metabolic processes, vitamin preparations, their classification, mechanism of	Writing of the essay. Execution of the laboratory and	Up to 1 point for the essay, up to 20 points for the laboratory and independent works

mechanism of action and characteristics of certain groups. Multivitamins		action and characteristics of certain groups, multivitamins; understand the mechanism of their action. Be able to write recipes	independent works	
Topic 29 Hormonal drugs. Classification of hormones and hormonal drugs. The mechanism of action of hormonal drugs. Estrogens, progestogens and androgens. Drugs of pituitary hormones and adrenal cortex. Prostaglandins	2/2/2	Know the hormonal drugs, the classification of hormonal drugs, their mechanism of action of hormonal drugs, the prostaglandins; understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 20 points for the laboratory and independent works
Topic 28 Tissue drugs. Enzyme and bacterial drugs. Drugs of amino acid	2/2/2	Know the tissue drugs, the enzyme and bacterial drugs, the drugs of amino acid; understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 20 points for the laboratory and independent works
Topic 28 Drugs that affect the metabolism of minerals. Drugs of macro- and micronutrients Complex drugs of mineral substances	2/2/2	Know the drugs of macro- and micronutrients, the complex drugs of mineral substances; understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 20 points for the laboratory and independent works
Modular control. Colloquium 4	2	Use the acquired knowledge when doing tasks	Doing the test tasks	Up to 30 points for the tests
Module 5				
Topic 30 Antimicrobials. Medicinal dyes. Sulfanilamides. Nitrofurans.	2/2/2	Know medicinal dyes, sulfonamides and nitrofurans drugs. Understand their mechanism of action. Write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 20 points for the laboratory and independent works
Topic 31 Antibiotics: classification by origin,	6/6/5	Know the classification, understand the	Writing of the essay. Execution of	Up to 1 point for the essay, up to 20 points for the

structure, strength and spectrum of antimicrobial action. Rules of rational use of antibiotics and their pharmacokinetics. Negative consequences of irrational use of antibiotics. Characteristics of antibiotics of different groups		mechanism of action of antibiotics of different groups, the rules of their rational use. Be able to write recipes for them	the laboratory and independent works	laboratory and independent works
Topic 32 Antiseptics and disinfectants. Factors influencing their action. Requirements for antiseptics and disinfectants. Oxidizers. Halogen-containing drugs. Iodine drugs. Aliphatic drugs Disinfectants. Detergents (soaps and detergents). Formaldehyde drugs, phenols, cresols and their derivatives. Quaternary ammonium compounds	4/4/2	Know the classification and understand the mechanism of action of antiseptics and disinfectants. Analyze the requirements for them and the factors influencing their action. Be able to write recipes	Writing of the essay. Execution of the laboratory and independent works	Up to 1 point for the essay, up to 20 points for the laboratory and independent works
Topic 33 Antiparasitic drugs. Anthelmintics. Insecticides and acaricides. Drugs for rodent control	4/2	Know antiparasitic drugs, understand the mechanism of their action. Be able to write recipes	Writing of the essay. Execution of the laboratory work	Up to 1 point for the essay, up to 20 points for the laboratory work
Topic 34 Antiviral drugs. Antiprotozoal drugs. Eimeriostatic drugs	2/1	Know the classification and mechanism of action of antiviral, antiprotozoal and eimeriostatic agents. Write recipes	Writing of the essay. Execution of the laboratory work	Up to 1 point for the essay, up to 20 points for the laboratory work
Modular control. Colloquium 5	2	Use the acquired knowledge when doing tasks	Doing of the test tasks	Up to 30 points for the tests
Total for the semester 2				70
Exam				30
All together				100

EVALUATION POLICY

<i>Deadline and recompilation policy:</i>	Laboratory, independent and modular works must be submitted in the planned time before the end of the study of the current module. Violation of the deadlines without a good reason entitles the teacher to lower the grade. Reassignment of modular control work occurs in the presence of valid reasons (for example, hospital) and is allowed in the term before the end of the following module.
<i>Academic Integrity Policy:</i>	Copying, use of mobile devices, and additional literature when writing modular tests, tests and exams are strictly prohibited.
<i>Visiting policy:</i>	Attendance at lectures and laboratory classes is mandatory for all students in the group. Late classes are not allowed. A lab coat is a must in laboratory classes. For objective reasons (for example, illness, international internship) training can take place according to an individual curriculum approved in a certain order. Missed lectures, after their processing by the applicant of higher education, are worked out in the form of an interview with the teacher. Missed laboratory classes are worked out by students in the laboratory of the department, information about the practice is entered into the departmental journal of the practice of missed classes.

SCALE OF EVALUATION OF STUDENTS

Rating of the applicant of higher education, points	The national assessment is for the results of examinations, tests	
	exams	tests
90-100	excellent 74-89 60-73 0-59	credited
74-89	good	
60-73	satisfactorily	
0-59	unsatisfactorily	not credited

RECOMMENDED SOURCES OF INFORMATION

1. Guidelines for laboratory classes of the discipline «Veterinary pharmacology» Module 2. Drugs affecting the central nervous system) / [I. M. Derkach, V.B. Duhnysky, V. D. Ischenko, et al.] // К.: Видавничий центр «Компринт». – 2022. – С. 32.
2. Guidelines for laboratory classes of the discipline «Veterinary pharmacology» Module 3. Drugs affecting the peripheral nervous system / [I. M. Derkach, V.B. Duhnysky, V. D. Ischenko, et al.] // К.: Видавничий центр «Компринт». – 2022. – С. 32.
3. Guidelines for laboratory classes of the discipline «Veterinary pharmacology» Module 4. Drugs regulating the functions of organs and system / [I. M. Derkach, V.B. Duhnysky, V. D. Ischenko, et al.] // К.: Видавничий центр «Компринт». – 2022. – С. 32.
4. Guidelines for laboratory classes of the discipline «Veterinary pharmacology» Module 5. Antimicrobial and antiparasitic drugs / [I. M. Derkach, V.B. Duhnysky, V. D. Ischenko, et al.] // К.: Видавничий центр «Компринт». – 2022. – С. 32.
5. Fundamentals of prescription writing “Guideline for practical training in “Veterinary pharmacology” course for students of Faculty of Veterinary Medicine / V.B. Duhnysky, I. M. Derkach, V. D. Ischenko, et al. // К.: Видавничий центр «Компринт». – 2017. – С. 45.
6. Guidance for educational practice for the students of degree "Bachelor" taught courses "Veterinary Pharmacology" / V. B. Duhnysky, I. M. Derkach // К.: Видавничий центр «Компринт». – 2017. – С. 38.
7. Veterinary pharmacology / Dukhnickyy V., Derkach I., Vosnuk T. – К., 2019.
8. Fundamentals of prescription writing / I.M. Derkach – Kyiv : Comprint, 2022. 128 p.
9. Ветеринарна фармакологія: підручник / Хмельницький Г.О., Духницький В.Б. –

К., 2017. – 571 с.

10. Аптечний практикум (навчальний посібник для лабораторних занять з дисципліни «Ветеринарна фармакологія» для студентів ОС «Бакалавр» та «Магістр» / В.Б. Духницький, І.М. Деркач – К.: ЦП Компрінт, 2017, 162 с.

11. Сучасна фармакологічна термінологія у ветеринарній медицині / В.Б. Духницький, І.М. Деркач – К.: ЦП Компрінт, 2017, 202 с.

12. Довідник з ветеринарної фармакології / В.Б. Духницький, І.М. Деркач, В.Д. Іщенко, О.К. Гальчинська – Київ : ЦП «Компрінт», 2019. – 232 с.

13. Державна фармакопея України. Перше видання. – Х.: РЕПІГ, 2002. Ветеринарні препарати / О.І. Канюка, І.І. Харів, В.М. Гунчак, Д.Ф. Гуфрій. – Львів, 2006. – 641 с.

14. Comparative and Veterinary Pharmacology / Cunningham F., Elliott J., Lees P. // Springer Heidelberg Dordrecht London New York, 2010. – 351 p.

15. Handbook of Veterinary Pharmacology / Walter H. Hsu // Wiley-Blackwell, 2008. – 564 p.

16. Pharmacology / Franklin A. Ahrens // Williams&Wilkins, 1996. – 313 p.

17. Handbook of comparative veterinary pharmacokinetics and residues of rescities and environmental contaminants [Електронний ресурс] // Veterinary books – Режим доступу до ресурсу: https://books.google.com.ua/books?id=nNbXUFMiD4AC&printsec=frontcover&hl=ru&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

18. Pharmacology and therapeutics for dentistryhttps [Електронний ресурс] // Veterinary books – Режим доступу до ресурсу: https://books.google.com.ua/books?id=utVOHYuhxioC&printsec=frontcover&hl=ru&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

19. Veterinary anaesthesia and pain managment secrets [Електронний ресурс] // Veterinary books – Режим доступу до ресурсу: https://books.google.com.ua/books?id=12tfG6xnIwYC&printsec=frontcover&hl=ru&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

20. Small animal clinical pharmacology and terapeutic [Електронний ресурс] // Veterinary books – Режим доступу до ресурсу: https://books.google.com.ua/books?id=yDjDr_MLGsC&printsec=frontcover&hl=ru&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false