SYLLABUS OF THE EDUCATIONAL COMPONENT

VETERINARY PARASITOLOGY

Specialty	**211 Veterinary Medicine**	**Obligation of discipline**	**Mandatory**
Educational program	**Veterinary Medicine**	**Faculty**	**Veterinary Medicine**
Educational level	**Master's degree**	**Department**	**Pharmacology and Parasitology**

LECTURER

Nikiforova Olga Vasylievna

Higher education - Veterinary Medicine Specialty
Scientific degree - Candidate of Veterinary Sciences 16.00.11 - Parasitology, Helminthology
Academic status - Associate Professor of the Department of Parasitology
Work experience - more than 18 years
Indicators of professional activity on the subject of the course:
- **author of more than 25 methodological recommendations;**
- **author and co-author of more than 110 scientific works, including articles indexed in scientometric databases Scopus and Web of Science – 7;**
- **declaratory patents for inventions – 5; training manuals – 3; copyright certificate for the work - 1;**
- **scientific-practical and methodical recommendations – 9;**
- **participant in scientific and methodical conferences.**

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The following are involved in the teaching of the discipline.

GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

Purpose of discipline	to acquire theoretical and practical knowledge in the diagnosis, treatment and prevention of parasitic diseases of animals, gaining practical skills in carrying out antiparasitic measures in livestock farms and preparing undergraduate students for independent practical work
Format	lectures, laboratory classes, independent work, individual tasks, team work, simulation project
Detailing of learning results and forms of their control	• ability to assess the state of health of animals suffering from parasitic diseases (GC1, GC2, GC3, GC9, SC2, SC3, SC4, SC6, SC7, PLO4, PLO5, PLO7) / simulation team project 1 • ability to predict the course of parasitic diseases and the effectiveness of control measures (GC1, GC2, GC3, GC9, GC11, GC2, GC3, GC4, GC6, GC7, GC8, GC13, PLO4, PLO5, PLO6, PLO7, PLO8, PLO9, PLO10)/ individual tasks on the analysis of the regulatory framework • ability to evaluate the quality of treatment and preventive measures for parasitic diseases (GC1, GC2, GC3, GC9, GC11, SC2, SC3, SC8, SC12, SC13, SC16, PLO6, PLO7, PLO8, PLO9, PLO10) / individual practical tasks • the ability to diagnose disorders in the body of animals suffering from parasitic diseases (GC1, GC2, GC3, GC9, SC2, SC3, SC4, SC6, SC7, PLO4, PLO5, PLO7) / training, team project 2 • implementation of environmental protection and biosecurity mechanisms for animal parasitic diseases (GC1, GC2, GC3, GC9, SC3, SC6, SC11, PLO4, PLO6, PLO9) / separate element of team project 1
Scope and forms of control	11 ECTS credits (330 hours): 44 hours of lectures, 92 hours of laboratory classes; 134 hours of independent work, current control (6 chapters); final control - non-differentiated credits (2), exam, clinical practice, term paper.
Requirements of the teacher	timely performance of tasks, activity, team work
Enrollment conditions	after mastering the following components: General zooparasitology. Veterinary protozoology and animal protozoa. Veterinary trematodology and animal trematodes. Veterinary cestodology and cestodoses of animals. Veterinary nematodology and animal nematodes. Veterinary acarology and animal acarosis. Veterinary entomology and entomoses of animals

COMPLIANCE WITH THE EDUCATION STANDARD AND EDUCATIONAL PROGRAM

Competences	**GC1** Ability to abstract thinking, analysis and synthesis **GC2** Ability to apply knowledge in practical situations **GC 3** Knowledge and understanding of the subject area and profession **GC 9** Ability to make informed decisions **GC 11** Ability to evaluate and ensure the quality of work that performing **SC 2** Ability to use tools, special devices, instruments, laboratory equipment and other technical means to carry out the necessary manipulations during professional activities **SC 3** Ability to follow the rules of labor protection, asepsis and antiseptics during professional activities **SC 4** Ability to conduct clinical research for the purpose	**Program learning outcomes**	**PLO4** Collect anamnestic data during registration and examination of animals, make decisions on the choice of effective methods of diagnosis, treatment and prevention of animal diseases **PLO 5** Establish a link between the clinical manifestations of the disease and the results of laboratory examinations **PLO 6** Develop quarantine and health measures, methods of therapy, prevention, diagnosis and treatment of diseases of various etiologies **PLO 7** Formulate conclusions on the effectiveness of selected methods and means of keeping, feeding and treatment of animals, prevention of infectious and non-communicable diseases, as well as production and technological processes in enterprises for keeping, breeding or operation of animals of different classes

	to formulate conclusions about the condition of animals or to establish a diagnosis SC 6 Ability to perform collecting sampling, pack, fix and send samples of biological material for laboratory research SC 7 Ability to organize and conduct laboratory and special diagnostic tests and analyze their results SC 8 Ability to plan, organize and implement measures for the treatment of animals of different classes and species sicked from non-communicable, infectious and invasive diseases SC 11 Ability to apply knowledge of biosafety, bioethics and animal welfare in professional activities SC 12 Ability to develop and implement measures to protect the population from zoonotic diseases common to animals and humans SC 13 Ability to develop strategies for disease prevention of various etiologies SC16 Ability to protect the environment from pollution by livestock waste, as well as materials and veterinary products		and species PLO 8 Conduct the monitor the causes of the spread of diseases of various etiologies and biological pollution of livestock waste, as well as materials and veterinary products PLO 9 Develop measures to protect the population from diseases common to animals and humans PLO 10 To offer and use expedient innovative methods and approaches of the decision of problem situations of a professional origin

STRUCTURE OF THE EDUCATIONAL COMPONENT

CHAPTER 1. «VETERINARY PROTOZOOLOGY AND PROTOZOOSES OF ANIMALS» GENERAL PARASITOLOGY

Lecture 1.	Characteristics of protozoa. Piroplasmidoses of animals.	Laboratory-practical class (LPC) 1	Introductory lesson. Diagnostics and differential diagnosis of babesiidoses of ruminants, horses, dogs and cats.	Self-study work	Features of epizootology of protozooses, helminthoses, acaroses and entomoses of animals. Teaching of E.N. Pavlovsky of the natural peculiarity of transmissive diseases. Features of immunity with protozooses, helminthoses, acaroses and entomoses of animals. Fundamentals of prevention of invasive diseases. Nosematoses and amebiosis of bees: their definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures.
Lecture 2.	Characteristic of coccidiida. Eimerioses of hens, rabbits and ruminants. Isoporinoses of animals (toxoplasmosis, sarcocystosis, cystoisosporoses of animals).	LPC 2	Diagnostics and differential diagnosis of coccidiidoses (eimeriosis) of poultry, rabbits, ruminants and fish		
		LPC 3	Diagnostics and differential diagnosis of animals' isosporinoses - toxoplasmosis, sarcocystosis, cystoisosporosis.		
		LPC 4	Testing equipment of laboratory diagnostics of animals' blood parasite protozooses. Testing equipment of laboratory diagnostics of animals' coccidioses.		
Lecture 3.	Zoomastigophoroses of animals (ciliophoroses, trichomonosis of cattle, histomonosis of turkeys).	LPC 5	Diagnostics and differential diagnosis of animals' zoomastygophoroses – trichomonosis of cattle and histomonosis		

			of poultry and trypanosomosis of solipeds.		Fish ciliatoses (chilodenelosis, trichodinosis, and ichthyophthiriosis). Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures.
		LPC 6	Diagnostics and differential diagnosis of pigs' balantidiosis, ruminants' anaplasmosis, poultry's borreliosis.		
CHAPTER 2. VETERINARY TREMATODOLOGY AND TREMATODOSES OF ANIMALS. VETERINARY CESTODOLOGY AND CESTODOSES OF ANIMALS					
Lecture 4.	Veterinary helminthology and helminthoses of animals. Trematodoses of ruminants: fasciolosis and paramfistomidoses. Dicrocoeliosis and eurytremosis of ruminants.	LPC 7	Characteristics of the class Trematoda. Diagnostics and differential diagnosis of fasciolosis and paramphistomidoses in ruminants.	Self-study work	Trematodoses of carnivorous (Clonorchosis, Metorchosis, Pseudamphistomosis, Alariosis, Metagonimosis, Paragonimosis, Heterophyosis, Schistosomosis). Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures. Trematodoses of fish: diplostomosis and postdiplostomosis. Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures. Mesocestoidoses of carnivorous, hydatigerosis of cats, amoeboteniosis and choanotaeniosis of hens. Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures. Ligulidoses of fish: definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and
		LPC 8	Diagnostics and differential diagnosis of dicrocoeliosis, eurytremosis in ruminants. Diagnostics and differential diagnosis of carnivorous' opisthorchidoses.		
Lecture 5.	Trematodoses of birds (prostogonimosis, echinostomatidoses, notocotylidoses) and carnivorous (opisthorchosis, etc.).	LPC 9	Diagnostics and differential diagnosis of poultry's trematodoses: prosthogonimosis, echinostomatidoses and notocotylidoses.		
		LPC 10	Testing equipment of lifetime and post-mortem diagnostics of helminthous invasions of animals.		
Lecture 6.	Veterinary cestodology and cestodoses of animals. Larval cestodoses of animals: cysticercoses, coenurosis, echinococcosis.	LPC 11	General characteristic of *Cestoda* class. Type of Cestoda's larvae. Diagnostics and differential diagnosis of cysticercoses bovis and cellulose in animals.		
		LPC 12	Diagnostics and differential diagnosis of cysticercoses tennuicolis and pisiformis in animals. Diagnostics and differential diagnosis of coenurosis, echinococcosis and alveococcosis larvae in animals.		
Lecture 7,8	Imaginal cestodoses of carnivorous - taenioses, dipylidiosis, diphyllobothriosis. Imaginal cestodoses of ruminants, horses and waterfowl.	LPC 13	Diagnostics and differential diagnosis of imaginal cestodoses of taeniidoses in carnivorous. Diagnostics and differential diagnosis of dipylidiosis and diphyllobothriosis in carnivorous.		

		LPC 14	Diagnostics and differential diagnosis of anoplocephalatoses in solipeds. Diagnostics and differential diagnosis of anoplocephalatoses in ruminants.		preventive measures. Bothryocephalosis fish. Carriosis, Caryophyllosis. Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures.
		LPC 15	Diagnostics and differential diagnosis of cestodoses of waterfowl and land birds		
CHAPTER 3. VETERINARY NEMATODOLOGY AND NEMATODOSES OF ANIMALS P I					
Lecture 9.	Veterinary nematodology and nematodoses of animals. Oxyuratoses of animals: oxyurosis of horses, passalurosis of rabbits, skrjabinemosis of sheep, heterakosis of birds.	LPC 16	Characteristics of nematodes of superfamily Oxyuroidea. Diagnostics and differential diagnosis of solipeds' oxyurosis, rabbits' passalurosis	Self-study work	Habronemosis and draschiosis of solipeds. Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures.
		LPC 17	Characteristics of nematodes of superfamily Oxyuroidea. Diagnostics and differential diagnosis of skrjabinemosis of small cattle, heterakidoses of poultry		
Lecture 10.	Ascaridatoses of animals: ascarosis of swine, parascarosis of horses, neoascarosis of calves. Ascaridatoses of carnivorous and ascaridiosis of poultry. Anisakidoses of fish and poultry.	LPC 18	Characteristics of nematodes of superfamily Ascaridoidea. Diagnostics and differential diagnosis of ascarosis of pigs, ascaridatoses of carnivorous		
		LPC 19	Diagnostics and differential diagnosis of solipeds' parascarosis and calves' neoascarosis Diagnostics and differential diagnosis of ascaridiosis of poultry, anisakidoses of fish and poultry		
Lecture 11.	Strongylatoses of the digestive tract of animals: ruminants (chabertiosis, oesophagostomosis, bunostomosis, nematodirosis, haemonchosis), strongylidoses of horses. Strongylatoses of the digestive tract of swine, carnivorous and geese.	LPC 20	Characteristics of nematodes of superfamily Strongyloidea. Diagnostics and differential diagnosis of strongylidoses of digestive tract in solipeds Diagnostics and differential diagnosis of strongylatoses of digestive tract in ruminants		
		LPC 21	Diagnostics and differential diagnosis of ancylostomatidoses of carnivorous, oesophagostomosis of pigs and amidostomosis of geese		

Lecture 12.	**Strongylatoses of respiratory tract of animals: dictyocaulosis of ruminants, metastrongylosis of swine, muelleriosis of sheep and goats, syngamosis of poultry.**	**LPC 22**	**Diagnostics and differential diagnosis of strongylatoses of respiratory tract in ruminants, pigs and poultry**		
CHAPTER 4. VETERINARY NEMATODOLOGY AND NEMATODOSES OF ANIMALS P 2					
Lecture 13.	**Trichuratoses of animals: trichurosis of pigs, ruminants and carnivorous, trichinelosis of pigs, capillarioses of animals.**	**LPC 23**	**Characteristics of nematodes of superfamily Trichuroidea. Diagnostics and differential diagnosis of animals' trichoroses and capillariosis**	**Self-study work**	**Capillariosis and Thominxosis of fur animals and poultry. Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures.**
		LPC 24	**Diagnostics and differential diagnosis of animals' trichinelosis**		
Lecture 14.	**Spiruratoses of animals: thelaziosis of cattle, tetramerosis, streptocarosis and echinuriosis of waterfowl.**	**LPC 25**	**Characteristics of nematodes of superfamily Spiruroidea. Diagnostics and differential diagnosis of thelaziosis of cattle and spiruratoses of poultry (tetramerosis, streptocarosis, echinuriosis)**		
Lecture 15.	**Filariatoses of animals: parafilariosis of horses, onchocercoses and setarioses of cattle and horses. Dirofilariosis of dogs.**	**LPC 26**	**Characteristics of nematodes of superfamily Filarioidea. Diagnostics and differential diagnosis of onchocercoses and setarioses, parafilariosis of ruminants**		
		LPC 27	**Characteristics of nematodes of superfamily Filarioidea. Diagnostics and differential diagnosis of parafilariosis of horses and dirofilariosis of carnivorous**		
		LPC 28	**Characteristics of nematodes of superfamily Rhabditoidea. Diagnostics and differential diagnosis of strongyloidoses of young animals**		
		LPC 29, 30	**General characteristics of helminthes of Acanthocephala class. Diagnostics and differential diagnosis of macracanthorhynchosis of pigs, poultry's polymorphosis and filicollosis**		
CHAPTER 5. VETERINARY ACAROLOGY AND ACAROSES OF ANIMALS					
Lecture 16.	**Veterinary acarology and acaroses of animals. Parasitiformes ticks: Ixodidae,**	**LPC 31, 32**	**Characteristics of *Arthropoda* of subclass *Acari*. Ticks' taxonomy. Parasitiformes ticks. Morphological identification**	**Self-study**	**Listrophorosis of rabbits. Definition, characteristics of pathogens, epizootological data,**

	Argasidae and Dermanyssidae.		ofIxodides to the genus and their biological classification.		clinical sings, diagnostics, treatment and preventive measures. Acarological disease of bees. Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures. Cheiletiosis of dogs and rabbits. Definition, characteristics of patho-gens, epizootological data, clinical sings, diagnostics, treatment and preventive measures.
		LPC 33, 34	Morphological identification of *Argasidae* and *Dermanyssidae* ticks to the genus. Diagnostics and differential diagnosis of acaraposis and varroosis of bees.		
Lecture 17.	Acariformes mites and acaroses of animals. Sarcoptidoses of animals: sarcoptosis and notoedrosis.	LPC 35	Acariformes mites. Sarcoptoidoses of animals. Diagnostics and differential diagnosis of sarcoptosis and notoedrosis.		
Lecture 18.	Psoroptidoses of animals: psoroptosis, chorioptosis and otodectosis.	LPC 36	Psoroptidoses of animals: diagnostics and differential diagnosis of psoroptosis.		
		LPC 37	Psoroptidoses of animals: diagnostics and differential diagnosis of chorioptosis and otodectosis.		
Lecture 19.	Demodecosis of animals. Knemidocoptosis of birds.	LPC 38	Trombidiformes mites. Diagnostics and differential diagnosis of poultry' knemidocoptosis and demodecosis of animals.		
CHAPTER 6. VETERINARY ENTOMOLOGY AND ENTOMOSES OF ANIMALS					
Lecture 20.	Veterinary entomology and entomoses of animals. Botfly invasions: hypodermosis of cattle, oestrosis of sheep, rhinoestrosis and gastrophilosis of horses.	LPC 39	Characteristics of *Arthropoda* of Class *Insecta*. Botfly invasions of animals: diagnostics and differential diagnosis of cattle's hypodermosis.	Self-study work	Dermatobiosis, oedemagenosis, cephalopinosis and pharingomiosis of ruminants. Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures. Braulosis, senotainiosis, and conopidoses of bees. Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics, treatment and preventive measures. Hyppoboscosis, lipoptenosis, and linognathosis of ruminants. Definition, characteristics of pathogens, epizootological data, clinical sings, diagnostics,
		LPC 40	Botfly invasions of animals: diagnostics and differential diagnosis of cattle's oestridoses (oestrosis, crivelliosis, cephenomyosis).		
		LPC 41	Botfly invasions of animals: diagnostics and differential diagnosis of rhinoestrosis and gastrophilosis of soliped.		
Lecture 21.	Dipterous blood-sucking insects (Midges): clegs, blood-sucking flies, blackflies, punkies, mosquitoes, sandflies, horse ked (forest fly). Zoophilous flies – blood-sucking and non-blood-sucking, their role in the pathology of animals.	LPC 42	Blood-sucking *Diptera* insects (Midges): morphological and biological identification of clegs, blackflies, punkies, mosquitoes and sandflies.		
		LPC 43	Zoophilous flies: morphological and biological identification of family *Muscidae*, *Sarcophagidae*, *Calliphoridae*, *Glossinidae*.		

		LPC 44	Diagnostics of simuliotoxicosis and animals' myasis (Wohlfahrtiosis, Luciliosis).		treatment and preventive measures.
Lecture 22.	Wingless insects: melophagosis of sheep, siphunculatoses, mallophagoses and siphonapteroses of animals.	LPC 45	Wingless insects –permanent ectoparasites of animals: melophagosis of sheep (keds), Siphunculatoses of animals.		
		LPC 46	Wingless insects – permanent ectoparasites of animals (Mallophagoses and Siphonapteroses of mammals and poultry).		

BASIC LITERATURE AND METHODOLOGICAL MATERIALS

Literature

1. Domenico Otranto, Richard Wall. Veterinary parasitology. John Wiley & Sons Ltd, 5th edition 2024, 896 p.
2. Timothy M. Goater, Cameron P. Goater, Gerald W. Esch. Parasitism. The diversity and ecology of animal parasites. Second edition, Cambridge, University Press, 2001, 2014, 524 p.
3. Gregory v. Lamann. Veterinary parasitology. Nova biomedical Press, Inc. New York, 2010, 323 p.
4. G.M.Urquhart, J.Armour, J.L.Duncan at all. Veterinary parasitology. The faculty of veterinary medicine, the University of Glasgow, Scotland, 2nd edition 1996, 307 p.
5. Dwight D. Bowman Charles M. Hendrix David S. Lindsay Stephen C. Barr. Feline Clinical Parasitology. Iowa State University Press. 2002. 469 p.
6. Principles and Practices of Canine and Feline Clinical Parasitic Diseases. Edited by Tanmoy Rana. Department of Veterinary Clinical Complex West Bengal University of Animal & Fishery Sciences Kolkata, West Bengal, India. 2024 by John Wiley & Sons, 301 p.

Methodical support

1. Veterinary Parasitology Part I. Workbook for laboratory classes / O.V. Nikiforova, O.V. Mazanny, Kh., SBTU, 2023. 83 p.
2. Veterinary Parasitology Part III. Workbook for laboratory classes / O.V. Nikiforova, O.V. Mazanny, Kh., SBTU, 2023. 58 p.
3. Veterinary Parasitology Part II. Workbook for laboratory classes / O.V. Nikiforova, O.V. Mazanny, Kh., SBTU, 2024. 64 p.
4. Veterinary Parasitology: methodological guidelines for performing a term paper «Case history» for students of V course of the second (master's) level of higher education on the basis of complete general secondary education in specialty 211 - Veterinary Medicine/ O.V. Nikiforova, O.V. Mazanny. Kh., 2024. 30 pp.

EVALUATION SYSTEM

SYSTEM	POINTS	ACTIVITY TO BE EVALUATED

Final assessment (different credit, exam)	100 points ECTS (standard)	up to 100	40 % - Final testing 60 % - student's current work during the semester
Final assessment (non-differential credit)	100 points ECTS (standard)	up to 100	100 % - average grade for sections
Rating of section	100 points total	up to 30	30 % - answers to test questions
		up to 30	30 % - the result of mastering the block of independent work
		up to 40	40 % - student activity in class (oral answers)

NORMS OF ACADEMIC ETHICS AND CHARITY

All participants in the educational process (including those seeking education) must adhere to the code of academic integrity and the requirements set forth in the provision "On academic integrity of participants in the educational process of DBTU": show discipline, education, respect each other's dignity, show kindness, honesty, responsibility.