



**NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL SCIENCES OF  
UKRAINE**

Department of Pharmacology, Parasitology and Tropical Veterinary Medicine

**“APPROVED”**  
Dean of the Veterinary Medicine Faculty  
Mykola TSVILIKHOVSKII  
\_\_\_\_\_ 2023



**APPROVED**  
at a working meeting of the the Department of Pharmacology,  
Parasitology and Tropical Veterinary Medicine  
Record №4, «18<sup>th</sup>» April 2023  
Head of Department  
 Vadym ISCHENKO

**CONSIDERED**  
Guarantor of EP "Veterinary Medicine"  
 Natalia GRUSHANSKA

**CURRICULUM WORK PROGRAM**

«PARASITOLOGY AND INVASIVE ANIMAL DISEASES»

Specialty 211 "Veterinary Medicine"

Educational program Veterinary Medicine

Faculty of Veterinary Medicine

Developers: Galat M.V., Doctor of Veterinary Medicine, Professor

Kyiv – 2023

## **1. Purpose, tasks and competencies of the discipline**

Parasitology is a complex science that studies zooparasites, diseases caused by them and measures to combat them. This is one of the main clinical disciplines, which forms a specialist in veterinary medicine. The main role of the discipline is to master the structure and development of agents of invasive diseases and treatment and prevention measures in farms of different directions. The main focus is on zoonoses – diseases common to humans and animals.

**The purpose** of the discipline is to acquire theoretical and practical knowledge in the diagnosis, treatment and prevention of invasive animal diseases, gaining practical skills in carrying out antiparasitic measures in livestock farms and preparing students for independent practical work.

### **The task of studying the discipline:**

Based on the qualification characteristics of the veterinarian, each student must have the following knowledge about the main invasive animal diseases:

1. Agents of disease;
2. Economic losses;
3. The cycle of development of agents;
4. Epizootological data;
5. Pathogenesis;
6. Symptoms of the disease;
7. Pathological changes;
8. Diagnosis;
9. Treatment;
10. Preventive measures;
11. Health-improving measures in farms of different directions.

**The uniqueness of the discipline** lies in the teaching of the following sections of the discipline: helminthiasis of horses and features of their prevention, filariasis (animal setariosis and dirifilariosis of dogs), babesiosis, eimeriosis, toxoplasmosis, sarcocystosis of animals. According to which teachers of the department doctoral and candidate's theses are protected. Among the listed topics, new approaches in the diagnosis, treatment and prevention of these diseases are proposed, data on the spread, pathogenesis and course are studied and improved.

As a result of studying the discipline the student must

### **Know:**

1. Agents of disease;
2. Economic losses;
3. The cycle of development of agents;
4. Epizootological data;
5. Pathogenesis;
6. Symptoms of the disease;
7. Pathological changes;
8. Diagnosis;
9. Treatment;
10. Preventive measures;

11. Health-improving measures in farms of different directions.

**Be able to make** an accurate diagnosis of invasive disease, to conduct laboratory studies of various materials from sick animals for the presence of agents of invasive diseases, to conduct differential diagnosis, to have modern research methods.

**Acquisition of competencies:**

***integral competence (IC):***

the ability to solve complex problems and tasks in the field of veterinary medicine, which involves research and/or innovation and is characterised by uncertainty of conditions and requirements.

***general competencies (GC):*** ability to abstract thinking, analysis and synthesis. Ability to apply knowledge in practical conditions. Ability to communicate in the state language both orally and in writing. Ability to communicate in a foreign language. Skills in the use of information and communication technologies. Ability to conduct research at the appropriate level. Ability to learn and master modern knowledge. Ability to make informed decisions. Ability to communicate with representatives of other professional groups of different levels. Ability to evaluate and ensure the quality of work performed (parasitological research, treatment and prevention measures, treatments, etc.). The desire to preserve the environment.

***professional (special) competencies (PC):*** The ability to establish the structure of parasites. Ability to use tools, special devices (microscopes, centrifuges, magnifiers, etc.), instruments, laboratory equipment and other technical means to carry out the necessary manipulations during professional activities. Ability to conduct clinical trials to draw conclusions about the condition of animals or to establish a diagnosis, ability to take, pack, record and send samples of biological material for parasitological research. Ability to organize and conduct laboratory and special diagnostic parasitological studies and analyze their results. Ability to plan, organize and implement activities for the treatment of animals of different species and classes suffering from invasive diseases. Ability to carry out educational activities among workers in the industry and the population on invasive diseases.

**Programme learning outcomes (PLOs):**

PLO 1. To know and correctly use the terminology of veterinary medicine.

PLO 2. Use information from domestic and foreign sources to develop diagnostic, therapeutic and business strategies.

PLO 3. Determine the essence of physicochemical and biological processes that occur in the body of animals in normal and pathological conditions.

PLO 4. 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. To establish the relationship between clinical manifestations of the disease and the results of laboratory tests.

PLO 6. Develop quarantine and health improvement measures, methods of therapy, prevention, diagnosis and treatment of diseases of various etiologies.

PLO 7. Formulate conclusions about 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 different classes and species.

PLO 8. To monitor the causes of the spread of diseases of various etiologies and biological pollution of the environment by livestock waste, as well as materials and veterinary products.

PLO 9. Develop measures aimed at protecting the population from diseases common to animals and humans.

PLO 17. Know the rules and requirements of biosafety, bioethics and animal welfare.

PLO 18. To carry out accounting reporting in the course of professional activity.

PLO 19. To carry out educational activities among industry employees and the public and the public.

PLO 20. Possess specialised software tools to perform to perform professional tasks.

**Competences (knowledge, skills) recommended by the OIE (P - primary, I - intermediate) which students should have after studying the course "Parasitology and Invasive Animal Diseases".**

- **Epidemiology** (used partly, at the initial level of knowledge): - knowledge and understanding of the general principles of descriptive epidemiology in relation to parasitic animal diseases, including zoonoses (opisthorchiasis, trichinosis, bovine cysticercosis, pigs cysticercosis, echinococcosis, diphyllobotriasis, animal ascariasis, strongyloidiasis, toxoplasmosis, cryptosporidiosis, sarcocystosis, etc.)

Study of the nature of the disease, its causes, processes, development and consequences.

Development of a broad understanding of the fundamental principles of biomathematics, including biostatistics, research planning, planning and implementation of experimental and monitoring data collection, data management and analysis, critical evaluation of published information on parasitic diseases.

- **Zoonoses C (P):** to determine clinical signs, clinical course, transmission potential and agents associated with common zoonoses caused by parasites; use or explain the use of relevant diagnostic and therapeutic tools for common zoonoses.

Morphology and biology of endo- and ectoparasites relevant to veterinary medicine. Broad understanding of the life cycle and pathogenesis of animal parasites: immunological and pathophysiological aspects of the parasite and its carrier, severity of zoonotic parasitological infection / infection, principles and protocols for diagnosis, treatment and control of parasitological infections / infections. Methods of laboratory diagnosis and identification of important life cycles of parasites. With a focus on parasites that affect the health and well-being of animals, as well as parasites that can affect human health. In particular (opisthorchiasis, trichinosis, cysticercosis of cattle, pigs, echinococcosis, diphyllobotriasis, animal ascariasis, strongyloidiasis, toxoplasmosis, cryptosporidiosis, sarcocystosis, etc.). Veterinary health is defined by the WHO as "a set of actions aimed at protecting the physical, mental and social well-being of human beings through the understanding and application of veterinary science". The course explores the basic principles and programs of human health protection against parasites of parasitic etiology.

- **Cross-border diseases.** Be able to identify clinical signs, leaks, transmission potential (including vectors (a significant role in this belongs to parasitic arthropods (flies, mosquitoes, gnats, mosquitoes, geese, sputum, zoophilic flies, bedbugs, cockroaches, blood-sucking permanent endoparasites), lice, bloodsuckers, gamazoid, Ixodes mites, etc.) and pathogens associated with transboundary diseases of parasitic etiology. Study of parasites and their effects on living organisms. Laboratory and other research methods; understanding of basic parasitological principles (transmission, classification, isolation and identification), knowledge epidemiology and pathogenesis of invasions with important pathogens of each type, clinical signs and diagnosis of invasion, choice of treatment, including the judicious use of antiparasitic drugs, prognostic and diagnostic value of laboratory or clinical tests.

- **New and rapidly spreading diseases.** (A significant role in this belongs to parasitic arthropods, as carriers of these diseases).

C - identify new and rapidly spreading diseases and provide relevant care;

C - identify suspicious signs and report them to the relevant Competent Authority;

C - understand the causes / hypotheses, explain the occurrence and recurrence of diseases;

C - know where to find relevant and reliable information on new and rapidly spreading diseases.

- **Programs of prevention and control of diseases of parasitic etiology.**

C - describe existing programs to prevent and control common zoonoses, communicable diseases, new diseases and rapidly spreading diseases, including animal identification, traceability and surveillance by the relevant veterinary authority.

## 2. Program and structure of the discipline for full-time education

№	Name topics	Number of hours				
		weeks	Total	Lectures	Lab.lessons	Ind. work
<b>Module 1. Trematodoses, cestodes of animals</b>						
1.	Topic 1. The doctrine of invasive diseases	1	4	2		2
2.	Topic 2. Helminthological research methods	2	4		2	2
3	Topic 3. General characteristics of trematodes. Fasciolosis of animals. Paraffistomatosis of ruminants. Opisthorchiasis of animals.	3	8	2	2	4
4.	Topic 4. Dicroceliosis. Echinostomatosis of birds. Identification of mollusks to species.	4	4		2	2
5.	Topic 5. General characteristics of cestodes. Cysticercosis of animals.	5	6	2	2	2
6.	Topic 6. Echinococcosis of animals. Cenurosis of sheep.	6	6	2	2	2

7.	Topic 7. Moniesiosis, tyzaniesiosis of ruminants. Anoplocephaly of horses.	7	6		4	2
8.	Topic 8. Carnivorous dipylidiosis. Hymenolepididosis of birds	8	4		2	2
<b>Module 2. Nematodoses of animals</b>						
9	Topic 9. General characteristics of nematodes. Ascariasis of animals.	9	6	2	2	2
10	Topic 10. Pulmonary strongylidosis. Gastrointestinal strongylidosis of animals.	10	6	2	2	2
11	Topic 11. Strongilidosis of horses. Goose amidostomy	11	4		4	
12	Topic 12. Animal trichuratosi. Trichinosis.	12	6	2	2	2
13	Topic 13. Spiruratosi of animals and birds.	13	4		2	2
14	Topic 14. Filariasis of animals.	14	4	2		2
15	Topic 15. Acanthocephaly of animals.	15	4		2	2
<b>Module 3. Arachnoentomoses of animals</b>						
16	Topic 16. General characteristics of the class Insecta. Diseases of animals.	1	6	2	4	2
17	Topic 17. Zoophilic flies.	2	5	2	2	2
18	Topic 18. Disgust.	3	6	2	2	2
19	Topic 19. Wingless insects.	4	4	2	2	2
20	Topic 20. General characteristics of the class Acarina. Sarcoptiform mites.	5	8	2	4	2
21	Topic 21. Animal psoroptidosis.	6	6	2	4	2
22	Topic 22. Demodectic mange of animals	7	4	2	2	2
23	Topic 23. Argas and gamazoid mites.	8	6	2	2	2
24	Topic 24. Parasitic mites. Ixodidosis of animals.	9	5	2	3	2
<b>Module 4. Protozooses of animals</b>						
25	Topic 25. General characteristics of the simplest. Piroplasmidosis of animals.	10	4	2	2	2
26	Topic 26. Babesiosis of animals	11	6		4	2
27	Topic 27. Eimeriosis of animals.	12	6	2	4	2
28	Topic 28. Sarcocystosis of animals. Cryptosporidiosis	13	8	2	4	2
29	Topic 29. Toxoplasmosis of animals Balantidiosis.	14	4	2	4	2
30	Topic 30. Basic antiprotozoal drugs. Diseases caused by prokaryotes	15	7	3	2	2
Course project (work) with (if available in the working curriculum)		+				
<b>Total hours</b>			180	45	75	60

### 3. Topics of laboratory lessons

№	Name topics	Quantity of hours
1	Laboratory research methods	2
2	Paramphistomatosis of ruminants. Dicrocoeliosis. Fasciolosis of animals.	2
3	Opisthorchiasis of animals. Echinostomatosis of birds.	2
4	Identification of mollusks to species.	2
5	Cysticercosis of animals.	2
6	Echinococcosis of animals. Cenurosis of sheep.	2
7	Moniesiosis, tizaniesiosis of ruminants. Anoplocephaly of horses. Carnivorous diphtheria.	2
8	Hymenolepididosis of birds.	2
9	Ascariasis of animals.	2
10	Pulmonary strongylidosis.	2
11	Gastrointestinal strongylidosis of animals.	2
12	Horse strongylidosis. Goose amidostomy.	2
13	Animal trichuratosi. Trichinosis.	2
14	Spiruratosi of animals and birds.	2
15	Acanthocephalus of animals.	2
16	Cattle hypodermosis. Estrosis of sheep	2
17	Gastrophilosis of horses.	2
18	Zoophilic flies.	2
19	Disgust.	2
20	Wingless insects.	2
21	Sarcoptiform mites.	2
22	Animal psoroptosis.	2
23	Demodectic mange of animals	2
24	Argas and gamazoid mites.	2
25	Long-stemmed Ixodes mites	2
26	Short-stemmed Ixodes mites	2
27	Babesiosis of cattle, sheep	2
28	Babesiosis of horses, dogs	2
29	Eimeriosis of chickens	3
30	Eimeriosis of rabbits.	2
31	Sarcocystosis of animals.	2
32	Toxoplasmosis of animals	2
33	Cryptosporidiosis of animals	2
34	Balantidiosis.	2
35	Amoebiasis of animals.	2
36	Diseases caused by prokaryotes. Anaplasmosis. Hemoplasmosis.	2
37	Diseases caused by prokaryotes. Lyme disease of birds.	3

#### **4. Test questions, sets of tests to determine the level of knowledge acquisition by students.**

##### **List of questions**

1. General characteristics of trematodes. 2. General characteristics of cestodes. 3. Fasciolosis of animals. 4. Paramphistomatosis of ruminants. 5. Opisthorchiasis. 6. Echinostomatosis of waterfowl. 7. Dicrocoeliosis. 8. Laval cestodes. 9. Imaginary cestodes. 10. Cysticercosis of cattle. 11. Cysticercosis of pigs. 12. Tenuicol cysticercosis. 13. Echinococcosis. 14. Moniesiosis. 15. Tizaniesiosis. 16. Dipilidiosis. 17. Anoplocephalidosis of horses. 18. Define Devastation. 19. Define EE. 20. Define II. 21. Define EI. 22. Define IE. 23. The doctrine of natural fire. 24. Ecological and parasitological school and its founder. 25. Parasitocenoses. 26. Ascariasis of animals (ascariasis, neoascariosis, paraskariosis, toxocariasis, toxocariasis, ascariasis). 27. Pulmonary strongylidosis (dictyocaulosis, protostrongylidosis, metastrongylosis, syngamosis). 28. Gastrointestinal strongylidosis of juveniles, horses, carnivores. 29. Spiruratosis (telasiosis, tetramerosis, streptocariosis, echinuria). 30. Trichuratosis (trichurosis, trichinosis). 31. Strongyloidiasis. 32. Filariasis (cattle setariosis, heartworm disease). 33. Oxyuratosis (heterosis, oxyurosis). 34. Acanthocephaly (macracanthorinhosis, phylicosis, polymorphism). 35. General characteristics of acariform mites. 36. General characteristics of parasitic mites. 37. Sarcoptosis. 38. Psoroptosis. 39. Otodectosis. 40. Notoedrosis. 41. Knemidokoptoz. 42. Demodectic mange. 43. Ixodes mites. 44. Argas mites. 45. Hamasoid mites. 46. Hypodermosis of cattle. 47. Estrosis of sheep. 48. Gastrophilosis of horses. 49. Zoophilic flies. 50. Disgust. 51. Wingless insects (lice, hairflies, fleas, bedbugs). 52. Cockroaches. 53. General characteristics of the simplest. 54. Babesiosis (cattle, sheep, horses, dogs). 55. Eimeriosis (ruminants, rabbits, chickens). 56. Sarcocystosis. 57. Toxoplasmosis. 58. Cryptosporidiosis. 59. Balantidiosis. 60. Lyme disease of birds. 61. Anaplasmosis of ruminants. 62. Eperitrozonoses.



**НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ БІОРЕСУРСІВ ТА ПРИРОДОКОРИСТУВАННЯ УКРАЇНИ**

Факультет **Ветеринарної медицини**

Напрямок підготовки **Ветеринарна медицина**

Форма навчання **Денна**

Семестр   7   Курс   4  

ОР «Бакалавр»

Кафедра **фармакології, паразитології та тропічної ветеринарії**

Дисципліна **«Паразитологія та інвазійні хвороби тварин»**

Викладачі (Галат М.В.)

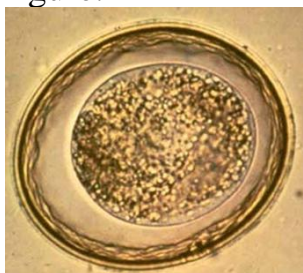
«Затверджую»

Завідувач кафедри \_\_\_\_\_ ( \_\_\_\_\_ )

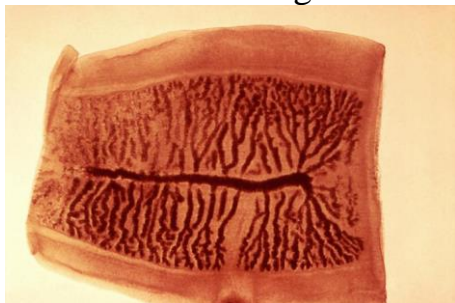
«  » \_\_\_\_\_ 20  р.

**БІЛЕТ №\_18\_**

1. Define the term "Optional Host".
2. Enter the name of the pathogen in Latin, the embryo of which is shown in the figure.



3. Enter the name of the agent shown in the figure in Latin.



4. Indicate the names of diseases in which pathogens can be localized (parasitized) in the lungs of animals.
5. Enter the names of diseases whose causative agents belong to the suborder Strongylata.
6. Define the term "Disinvasion".
7. Describe the concept of "Diagnostic deworming".
8. Studies of amphibians to detect helminth embryos are carried out in the following parasitic diseases...
9. The process of transformation into a mature stage in the host's body in the setarium continues ..... (specify the duration of the period).
10. Echinococcal bladder reaches the invasive stage by... .. (specify the duration of the period).

**Descriptive questions:**

1. Describe an agent (agents) and describe the development cycle of gastrophilosis.
2. Describe the diagnosis, treatment and prevention of sarcocystosis in animals.

## 5. Methods of education.

Forms and methods of teaching - lectures, laboratory classes according to the course program.

## 6. Forms of control.

Forms of organization of knowledge control, assessment system - knowledge control is carried out by students performing laboratory work, presentations, compilation of modular tests on a modular rating system.

Current control of students' knowledge is carried out in laboratory classes and consists of preliminary control of students' knowledge, skills and abilities, statement of the general problem by the teacher and its discussion with students, solving problems with their discussion, solving control problems, checking, evaluating .

Control of knowledge and skills of students (current and final) in the discipline is carried out according to the credit-module system. The rating for mastering the discipline is determined by a 100-point scale. It consists of a rating of academic work, for the evaluation of which is assigned 70 points, and a rating of certification (exam) - 30 points.

The final (general assessment) of the course is the sum of rating assessments (points) obtained for individual assessed forms of educational work: current and final testing of the level of mastery of theoretical material during classroom classes and independent work (modular control); evaluation (points) for laboratory tests. The final grade is set after a full study of the discipline, which is displayed as the sum of intermediate grades for content modules. The final assessment of the level of knowledge consists of a rating of academic work, for the assessment of which is assigned 70 points, and a rating of certification (exam) - 30 points.

Semester control is conducted in the form of a semester test (in the 4th semester for the 2nd year of art. And the 6th semester of the 3rd year of full term study) exam (3rd semester 3rd year of art. training) in the amount of educational material and in the terms established by the curriculum.

**7. Distribution of points received by students.** Assessment of student knowledge is on a 100-point scale and is translated into national assessments according to table. 1 "Regulations on examinations and tests in NUBiP of Ukraine" (order of entry into force of 27.12.2019 № 1371)

<b>Student rating, points</b>	<b>National assessment based on the results of the compilation</b>	
	<b>Exams</b>	<b>Set-off</b>
<b>90-100</b>	<b>Perfectly</b>	<b>Credited</b>
<b>74-89</b>	<b>Fine</b>	
<b>60-73</b>	<b>Satisfactorily</b>	
<b>0-59</b>	<b>Unsatisfactorily</b>	<b>Not credited</b>

9. To determine the rating of the student for mastering the discipline RDIS (up to 100 points) the obtained rating for certification (up to 30 points) is added to the rating of the student (listener) for educational work RNR (up to 70 points):  $R\ DIS = R\ HP + R\ AT$ .

## 9. Methodical support

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4. Сорока Н.М., Кичилюк Ю.В., Пашкевич І.Ю. Еймеріоз і ізоспороз свиней. Монографія. К.: «ЦП «КОМПРИНТ», 2020. 216 с.
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10. Прус М.П., Зворигіна В.Є., Семенко О.В. Монографія. Саркоцистоз тварин. – К.: ЦП «КОМПРИНТ», 2019. – 149 с.
11. Методичні вказівки "Лабораторна діагностика протозоозів тварин" Сорока Н., Прус М., Семенко О., Пашкевич І., Галат М., Слободян Р./ Компринт.-К.-2021,-3.5 д.а.
12. Методичні вказівки "Лабораторна діагностика гельмінтозів тварин" Сорока Н., Прус М., Семенко О., Пашкевич І., Галат М., Слободян Р./ Компринт.-К.-2021,-5.5 д.а.
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## **10. Recommended sources of information**

### **Main literature**

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5. Методичні вказівки "Лабораторна діагностика протозоозів тварин" Сорока Н., Прус М., Семенко О., Пашкевич І., Галат М., Слободян Р./ Компринт.-К.-2021,-3.5 д.а.
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7. Рекомендації з діагностики саркоцистозу тварин /Прус М.П., Семенко О.В., Литвиненко О.П., Зворигіна В.Є. / ДНДІЛДВСЕ, Київ, 2016. - 18 с.
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### **11. Informational resources**


1. Найпоширеніші інвазійні хвороби свійських тварин [http://ir.znau.edu.ua/bitstream/123456789/2533/1/Invazijni%20hvoroby%20svijskyh%20tvaryn\\_2012.pdf](http://ir.znau.edu.ua/bitstream/123456789/2533/1/Invazijni%20hvoroby%20svijskyh%20tvaryn_2012.pdf)
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  2. Поширення основних гельмінтозів жуйних тварин та розробка ... [www.lib.ua-ru.net/diss/cont/345414.html](http://www.lib.ua-ru.net/diss/cont/345414.html)
  3. Гельмінтози тварин <https://www.ncbi.nlm.nih.gov/books/NBK8282/>


**NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL SCIENCES OF  
UKRAINE**

Department of Pharmacology, Parasitology and Tropical Veterinary Medicine

**“APPROVED”**  
Dean of the Veterinary Medicine Faculty  
Mykola TSMILIKHOVSKII  
\_\_\_\_\_ 2023



**APPROVED**  
at a working meeting of the the Department of Pharmacology,  
Parasitology and Tropical Veterinary Medicine  
Record №4, «18<sup>th</sup>» April 2023  
 Head of Department  
Vadym ISCHENKO

**CONSIDERED**  
Guarantor of EP "Veterinary Medicine"  
 Natalia GRUSHANSKA

**WORK PROGRAM OF EDUCATIONAL PRACTICE  
«PARASITOLOGY AND INVASIVE ANIMAL DISEASES»**

Specialty 211 "Veterinary Medicine"

Educational program Veterinary Medicine

Faculty of Veterinary Medicine

Developer: Galat M.V., Doctor of Veterinary Medicine, Professor

Kyiv – 2023

## 1. Description of the discipline

### Parasitology and invasive animal diseases

<b>Field of knowledge, specialty, educational program, educational degree</b>	
Educational degree	Master
Specialty	211 «Veterinary medicine»
Educational program	Veterinary medicine
<b>Characteristics of the educational discipline</b>	
Kind	Obligatory
Total hours	30
Number of ECTS credits	1
Educational practice	30
Course project (work) (if available)	+
Form of control	<i>Offset</i>
<b>Indicators of academic discipline for full-time education</b>	
	full term of study
Year of preparation (course)	4
Semester	8
Lectures	
Laboratory classes	
Individual work	<i>30 hours</i>
Number of weekly classrooms hours for full-time study	

## **Purpose, tasks and competencies of the discipline**

Parasitology is a complex science that studies zooparasites, diseases caused by them and measures to combat them. This is one of the main clinical disciplines, which forms a specialist in veterinary medicine. The main role of the discipline is to master the structure and development of agents of invasive diseases and treatment and prevention measures in farms of different directions. The main focus is on zoonoses – diseases common to humans and animals. A certified electronic training course "Parasitology and Invasive Diseases" (<https://elearn.nubip.edu.ua/course/view.php?id=1382>) is used to assess the delivery of individual tasks of educational practice.

**The purpose** of the educational practice is to acquire practical knowledge in the diagnosis, treatment and prevention of invasive animal diseases, gaining practical skills in carrying out antiparasitic measures in livestock farms and preparing students for independent practical work.

Acquired knowledge of the course of parasitology and invasive diseases is necessary for the practical activities of a veterinarian.

### **The task of educational practice**

Based on the qualification characteristics of the veterinarian, each student must have the following knowledge about the main invasive animal diseases:

1. Agents of disease;
2. Economic losses;
3. The cycle of development of agents;
4. Epizootological data;
5. Pathogenesis;
6. Symptoms of the disease;
7. Pathological changes;
8. Diagnosis;
9. Treatment;
10. Preventive measures;
11. Health-improving measures in farms of different directions.

As a result of educational practice the student must

### **Know:**

1. Agents of disease and determine their morphological characteristics;
2. The cycle of development of agents and its features in different parasites;
4. Epizootological data;
5. Pathogenesis;
6. Symptoms of diseases of parasitic etiology;
7. Pathological changes;
8. Features of diagnosis of parasitic diseases, modern methods of their diagnosis;
9. Features of treatment for parasitic animal diseases;
10. Preventive measures;
11. Health-improving measures in farms of different directions.

### **be able:**

- qualified to diagnose using modern research methods;
- treat animals in case of detection of diseases of parasitic etiology;



- to carry out veterinary and sanitary assessment of products obtained from animals suffering from invasive diseases;
- develop, organize and implement measures for the prevention of parasitic animal diseases;
- to carry out differential diagnosis of diseases of parasitic etiology.

**Acquisition of competencies:**

***general competencies (GC):***

General competencies 3. Ability to conduct research at the appropriate level.

General competencies 4. Ability to learn and master modern knowledge.

General competencies 5. Ability to apply knowledge in practical situations

General competencies 12. Striving to preserve the environment

***professional (special) competencies (PC):***

Professional competencies 1. Analyze the basic principles of ensuring the safety of the food chain, control, assess and manage risks in the production and circulation of food, select, preserve, package and ship samples for parasitological research, conduct veterinary accounting, prepare reporting documents.

Professional competencies 2. Ability to have methods of working with national and international regulations, scientific papers, methodological developments, recommendations, instructions, etc.

Professional competencies 4. Ability to use knowledge about animal diseases of parasitic etiology for the implementation of state (internal) control at controlled facilities.

**Program and structure of the educational practice**

<b>Days of practice. Individual tasks</b>	<b>Hours</b>
Day 1. Rules for selection, packaging and shipment of material for parasitological research. General scheme and procedure of parasitological research. Methods of postmortem diagnosis of parasitic animal diseases.	6
Day 2. Helminthovoscopic and helminthoscopic research methods. Methods of quantitative and qualitative determination of helminths. Methods of research of environmental objects and intermediate and additional hosts of invasive agents.	6
Day 3. Helmintholaryoscopic research methods. Special research methods for animal helminthiasis. Features of veterinary and sanitary examination for diseases of parasitic etiology. Features of preventive and curative treatments of animals with helminthiasis.	6
Day 4. Features of diagnosis of diseases caused by arthropods. Methods of acarological research. Differential diagnosis of acarosis and entomoses of animals. Peculiarities of treatment and prophylactic treatments of animals with arachno-entomoses.	6
Day 5. Features of diagnosis of diseases caused by protozoa. Research methods for various pathogens caused by the simplest. Differential diagnosis of animal protozoa. Features of therapeutic and prophylactic treatments of animals with protozoa.	6
<b>Total quantity of hours</b>	<b>30</b>

#### **4. Test questions, sets of tests to determine the level of knowledge acquisition by students.**

1. In the copy of the autopsy report described in detail?
2. How and when to preserve the material for future investigations?
3. Methods of postmortem research for diseases caused by parasites?
4. Sampling for examination of environmental objects for helminthological studies from two adjacent sides?
5. Sampling for examination of environmental objects for helminthological research by the method of quartering?
6. Sampling for examination of the environment by the method of envelope for helminthological research?
7. Sampling in large animals?
8. Sampling for helminthological studies in small animals?
9. Treatment of animals with trematodes?
10. Treatment of animals with cestodes?
11. Treatment of animals with nematodes?
12. Treatment of animals with acanthocephalus?
13. Features of diagnosis of trematodes?
14. Features of diagnosis of cestodes?
15. How is the differential diagnosis of larval cestodes?
16. How is the differential diagnosis of imaginal cestodes?
17. How is the differential diagnosis of nematodes of cestodes?
18. How to conduct a differential diagnosis of acanthocephalus cestodes?
19. Where is the material for shipment placed?
20. In the study of bees selected?
21. How is the material sent to the laboratory?
22. Features of research of parasites in milk?
23. When is a urine test performed?
24. When are blood and helminthiasis tests performed?
25. How is the diagnosis of telasiosis in animals?
26. How to conduct research on onchocerciasis?
27. How to conduct research on setariosis?
28. Features of veterinary and sanitary examination for cysticercosis of cattle?
29. Features of veterinary and sanitary examination for cysticercosis of pigs?
30. Veterinary examination for echinococcosis?
31. Features of diagnosis and veterinary and sanitary expertise for aphid diseases?
32. Features of diagnosis of animal protozoa?
33. Features of the diagnosis of babesiosis?
34. Features of the diagnosis of sarcocystosis?
35. Veterinary and sanitary expertise for sarcocystosis?
36. Kakurina's method?
37. Features of the diagnosis of toxoplasmosis in intermediate hosts?
38. Features of differential diagnosis of animal entomoses?
39. Features of the diagnosis of acarosis?
40. Features of the diagnosis of acariform mites?
41. Features of the diagnosis of parasitic mites?

42. Preventive measures for larval cestodes?
43. Preventive measures for imaginal cestodes?
44. The most common zoonoses-trematodes and features of preventive measures for them?
45. The most common zoonoses-cestodes and features of preventive measures for them?
46. The most common zoonoses-nematodes and features of preventive measures for them?
47. The most common zoonoses-acanthocephaly and features of preventive measures for them?
48. The most common zoonoses among protozoa and features of preventive measures for them?
49. Features of treatment for helminthiasis of animals, depending on the species?
50. Features of treatment for helminthiasis of animals depending on the class of helminths?
51. Modern methods of diagnosing parasitic diseases?
52. Modern methods of diagnosing helminthiasis?
53. Modern methods of diagnosing protozoa?
54. The principle of PCR?
55. The principle of methods of immunological diagnosis?
56. Features of the solid-phase ELISA method?
57. Features of soil survey during parasitological research?
58. Differentiation of parasitic and free-living nematodes detected in soil samples?
59. Features of the study of mollusks?
60. Features of the study of fish on opisthorchiasis?
61. Research methods for trichinosis?
62. Trichinoscopy?
63. Digestion of muscles in artificial gastric juice in the study of trichinosis?
64. Features of parasitological research in birds?
65. Differential diagnosis of acariform mites?

**NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL SCIENCES OF UKRAINE**

FACULTY of Veterinary Medicine

Direction of training (specialty) Veterinary Medicine

Form of education full-time

Semester 8 Course 4

Department of Pharmacology, Parasitology and Tropical Veterinary Medicine

Discipline Parasitology and invasive diseases (Educational practice)

Lecturer: Galat M.V.

«Approved»



Chief of the Department

(Ischenko V.D.)

April «18», 2023

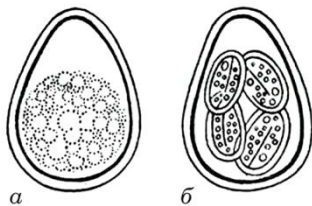
**Test test package Test (Educational practice)**

1. Enter the name of the insect shown in the figure



*(in the answer sheet, enter the correct answer in Ukrainian)*

2. Indicate where the oocyst is not sporulated in the figure



3. Indicate the correspondence of the agents to the site of localization in pigs

A. Intestinal epithelial cells	1. Eimeria
B. Muscles	2. Sarcocysts
	3. Toxoplasma
	4. Cryptosporidium

4. Specify the name of acarosis in which itching is absent or mild

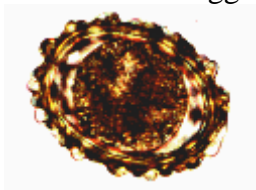
*(enter the name of the disease in the answer sheet)*

5. Give the name of the swine disease caused by the insect shown in the figure



*(enter the name of the disease in the answer sheet)*

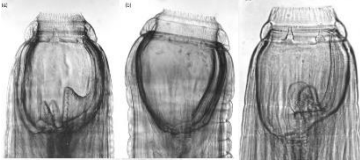
6. Indicate the egg of which pig helminth is shown in the figure (magnification approx. \*15, vol. \*20)



*(In the answer sheet, enter the name of the agent in Latin)*

7. Specify the compliance of agents of horses:

1. *Strongylus vulgaris*
2. *Strongylus edentates*
3. *Strongylus equinus*



A                      B                      C

8. Specify the Latin name of the helminth shown in the figure



(Enter the correct answer in the answer sheet)

9. Specify the name of the disease of calves, the causative agent of which is shown in the figure



(Enter the correct answer in the answer sheet)

10. Which of these drugs belong to the group of macrocyclic lactones?

1	Oversect
2	Brontel
3	Dectomax
4	Rolenol

11. Identify the agent localized in the bronchi

1	Heartworm
2	Metastrongil
3	Protostrongy
4	Trichuris

12. What is the name of the invasive larva in macrocathorchins?

1	Cercoid
2	Acantella
3	Adolescarium
4	Acanthor

13. What is the **main** method of fecal examination in case of suspected paramphistomosis?

1	Fulleborn
2	Consecutive washing
3	Berman-Orlov
4	Gorshkov

14. Name the group of drugs to which albendazole belongs

(Enter the correct answer in the answer sheet)

15. Which agents have an additional host?

1	Echinostomatides
2	Ascaris
3	Dictyocaulus

4 | Opisthorchiums

16. Specify a match

A. biohelminthiasis	1. Ascariasis 2. Metastrongilosis
B. geohelminthiasis	3. Olulanosis 4. Macracanthorinhosis

17. Infection with which helminthiasis occurs when an animal swallows larvae of the agent larvae of insect coprobionts?

(Enter the name of the disease in the answer sheet)

18. What is the name of the disease of pigs, the intermediate hosts of which are earthworms?

(Enter the name of the disease in the answer sheet)

19. How long after the animal enters the body of Trichinella become sexually mature?

1	1-2 weeks
2	2-3 weeks
3	1 month
4	2-5 days

20. Specify the name of the disease whose causative agent is shown in the figure



(Enter the name of the disease in the answer sheet)

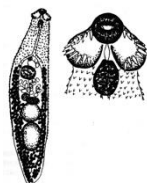
21. A helminthic examination revealed a pig helminth egg shown in the figure (magnification approx. X15, vol.x40). Make a diagnosis.



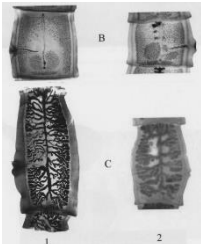
(Enter the name of the disease in the answer sheet)

22. Specify the name of the helminth shown in the figure

- 1 – Fasciola hepatica
- 2 – Opistorchus tenuicollis
- 3 – Echinostoma revolutum
- 4 – Paramphistoma cervi



23. Indicate the hermaphroditic joint of the porcine tapeworm in the figure



24. Specify the name of the disease, which is also called "nodular disease"  
(In the answer sheet, enter the correct answer in one word)

25. What is the general name of the research methods that detect helminth larvae?

(In the answer sheet, enter the correct answer in one word)

26. Indicate the correspondence of methods in helminthology

1. Flotation research methods	a. Consecutive washing
2. Deposition methods	b. Gorshkov
3. Combined methods	c. Kalantaryan
	d. Scherbovich
	e. Demidov
	f. Fulleborn

27. Where do adult *Trichinella* parasitize?

*(Enter the correct answer in the answer sheet)*

28. Specify a match

A. biohelminthiasis	1. Ascariasis
	2. Metastrongilosis
B. Geohelminthiasis	3. Olulanosis
	4. Macracanthorinosis

29. Identify the pathogen localized in the blood vessels

1	Sparganus spp.
2	Olulanus spp.
3	Schistosomes
4	Trichuris

30. What method is used to examine feces when fasciolosis is suspected?

1	Fulleborn
2	Consecutive washing
3	Berman-Orlov
4	Gorshkova

## 5. Methods of education

When performing individual tasks, students use the research method. After analyzing the material, setting problems and tasks, and briefing orally or in writing, those who are taught study the literature, sources, conduct observations and measurements, and perform other research activities in the circles. Initiative, independence, creative search are most fully manifested in research activities. Methods of educational work directly turn into methods that mimic and sometimes implement scientific research.

The success of learning in general depends on the internal activity of students, on the nature of their activities, namely the nature of activities, the degree of independence and creativity should be important criteria in choosing a method.

## 6. Forms of control

Control of knowledge and skills of students (current and final) in educational practice is carried out in accordance with the credit-module system of organization of the educational process. The student's rating for mastering the discipline is determined by a 100-point scale. It consists of a rating of academic work, for the evaluation of which is assigned 70 points, and a rating of final certification (credit) - 30 points.

The control of students' knowledge is performed during the acceptance of the results of individual tasks, with the help of control tests and at the end of the educational practice of taking the test with the help of tests.

Lists of control questions and tests are presented in the educational and methodical complex.

**7. Distribution of points received by students.** Assessment of student knowledge is on a 100-point scale and is translated into national assessments according to table. 1 "Regulations on examinations and tests in NULES of Ukraine" (order of entry into force of 27.12.2019 № 1371)

Student rating, points	National assessment based on the results of the compilation
	Set-off
60-100	Credited
0-59	Not credited

9. To determine the rating of the student for mastering the discipline RDIS (up to 100 points) the obtained rating for certification (up to 30 points) is added to the rating of the student (listener) for educational work RNR (up to 70 points):  $R\ DIS = R\ HP + R\ AT$ .

## 8. Methodical support

Scientific and methodological support of the educational process includes: state educational standards, curricula, curricula in all normative and elective disciplines; textbooks and manuals; instructional and methodical materials for seminars, practical and laboratory classes; individual educational and research tasks; control works; text and



electronic versions of tests for current and final control, methodical materials for the organization of independent work of students.

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