

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE**  
**Sumy National Agrarian University**  
**The Department of epizootiology and parasitology**

**"Approved"**

Head of Department  
epizootiology and  
parasitology

«  \_\_\_\_\_ 2020

(Kassich V.Y.)

**WORKING PROGRAM TRAINING COURSE (SILABUS)**

**PP.05 Parasitology**

**Specialty :** 211 *"Veterinary medicine"*

**Educational program :** *OPP "Veterinary Medicine"*

**Faculty:** *veterinary Medicine*

2020 - 2021 academic year

The work program on discipline "Parasitology" for students in the direction of 211  
"Veterinary Medicine.

**Developers:** Art. Lecturer V.I. Risovaniy

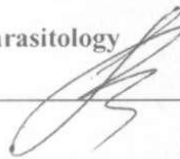


Work Program endorsed by the Department of epizootiology and  
parasitology. Minutes № 15 of " 1 " 06 2020 year

**Head of the Department of Parasitology  
and epizootiology** \_\_\_\_\_

(Kassich V.Y.)

(Signature) (surname and initials)



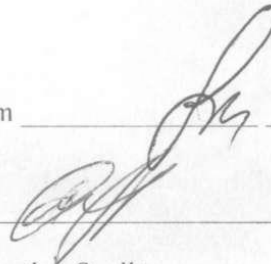
**Agreed:**

Guarantor of the educational program \_\_\_\_\_

LG. Ulko

Dean of the Faculty of Veterinary  
Medicine \_\_\_\_\_

O.I. Nechiporenko



Methodist of the Department of Education Quality  
licensing and accreditation \_\_\_\_\_

N. Baranik

N. Baranik

Registered in the electronic database : Date: 2020 r.

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## 1. Description of discipline

Name of indicators	Industry knowledge and direction of training, education level	Characteristics of discipline	
		full-time education	external form of education
Number of credits - 3	Branch of knowledge: <b>21</b> Veterinary	<i>Regulatory</i>	
Modules - 3	Training direction: <b>211</b> "Veterinary Medicine	<b>Year of training:</b>	
Content module 4		2020-2021 and	
		<b>Course</b>	
		4	-
		<b>Semester</b>	
Total hours - 90		7	-
		<b>Lectures</b>	
		14	-
		<b>Laboratory</b>	
		30	-
		<b>Independent work</b>	
		46	-
		<b>One problem:</b>	
		-	
		Type of control: <i>exam</i>	
	Education level: <i>master</i>		

**Note.**

The ratio of hours of classes to separate and individual performance is (%):  
for full-time - 49/51% (44/46)

## 2. The purpose and objectives of discipline

**purpose of** of discipline is to teach students to examine patients with invasive diseases, diagnosis, prepare the necessary forms of drugs, write them prescriptions, provide treatment and possess skills in organization antiparasitic treatment and preventive measures in the farms of different ownership.

**The task** discipline is mastering theoretical and practical knowledge of environmental issues pathogens and parasites of biological contamination of the environment.

### *A study of discipline a student must:*

**know:** tryhuroziv fundamental characteristic of pathogens, filariasis and rabdytatoziv animals, their structure, classification, clinical signs of diseases that they cause in animals and birds, pathological changes, the effect of parasites on the body, prevention and control measures nematodosiss. Methods lifetime and posthumous diagnosis of diseases, pathogens which are these nematodes. The main morphological and anatomical characteristics of arthropods their systematic position, clinical signs of diseases that they cause in animals, pathological changes mechanism of action of pathogenic mites and insects on animals. Zazhyttyevu and posthumous diagnosis and akaroziv entomoziv, prevention and control measures and akarozamy entomozamy. The main characteristic of the simplest, their structure, classification, clinical signs of diseases that they cause in animals and birds, pathological changes, the effect of parasites on the body, prevention and control measures protozoozamy. Methods zazhyttyevoyi and posthumous diagnosis protozooziv.

**be able:** timely and properly diagnose tryhurozy, filariasis and rabdytatozy animals develop measures to combat and prevent these diseases in disadvantaged households. Timely and correct diagnosis for a particular disease pathogens which may be mites or insects develop measures to combat and prevent this disease in disadvantaged households of different ownership. Timely and correct diagnosis for a particular disease caused protozoozamy develop measures to combat and prevent this disease in disadvantaged households.

### **3. Discipline Program**

The program of discipline "**Parasitology and invasive animal diseases**" recommended and approved by the Department of Scientific and Educational software APV and Rural Development Ministry of Agricultural Policy and Food of Ukraine on 11 June 2014.

#### **Content module 1. Stronhilyatozy animals.**

**Topic 1. Gastrointestinal stronhilyatozy animals. Stronhilyatozy Respiratory animals. Morphological and biological characteristics stronhilyat their systematic position. Stronhilidozy tsiatostomidozy and horses. Gastrointestinal stronhilyatozy animals and birds. Dyktiokauloz ruminants. Prtostronhilidozy animals and birds.**

Gastrointestinal stronhilyatozy horses, ruminants, pigs, birds and carnivores. Stronhilyatozy respiratory system of ruminants, pigs and poultry.

Hanhuleterakidoz geese. Skryabinemoz sheep. Neoaskarydoz calves. Toxocariasis cats. Ostertahioz ruminants. Ezofahostomoz animals. Olulanoz pigs. Protostronhiloz sheep. Myullerioz sheep and goats. Dyktiokauloz calves. Metastronhiloz pigs. Histrihoz birds.

#### **Content module 2. Spiruratozy, tryhurozy and animal filariasis.**

**1. Subject Spiruratozy tryhurozy and animals.** Telyaziozy animals. Spiruratozy birds. Trichinosis animals. Tryhuroz pigs, ruminants and carnivores.

Spiruratozy and animals tryhurozy

Kapilyariozy birds. Methods zazhyttyevoyi and postmortem diagnosis of trichinosis in animals. Prevention of trichinosis in animals.

**2. Subject filariasis, rabdytatozy akantotsefalozy and animals.** Setariosis and stefanofilyarioz ruminants. Dirofilariasis carnivores. Parafilyarioz and onchocerciasis horses and ruminants.

Filariasis animals. Setariosis stefanofilyariozu diagnostics and ruminants. Diagnosis dirofilariasis carnivores. Diagnosis and onchocerciasis parafilyariozu horses and ruminants.

Zazhyttyeva diagnosis of filariasis in animals. Strongyloidosis young animals. Makrakantorynhoz pigs. Polimorfoz filikoloz and poultry.

Rabdytatozy akantotsefalozy animals and birds. Diagnosis strongyloidosis young animals. Diagnosis makrakantorynhozu pigs. Diagnosis polimorfozu filikolozu and poultry.

Methods zazhyttyevoyi and posthumous diagnosis nematodosi animals. General and special measures for nematodosi animals. Bioecological prevention nematodosi.

#### **Content module 3. Arahnozy and animals entomozy.**

**Theme 1. Parazytyformni andkaryformni akarozy mites and animals.** Systematic position mites. Diagnostic features Ixodes, arhasovyh dermanisusnyh and ticks. Sarkoptydozy Animals (sarcoptic mange pigs, horses,

notoedroz). Psoroptozy animals (psoroptoz sheep, horses, rabbits, cattle, horioptozy, otodektoz). Knemidokoptoz birds. Acne animals.

Parazytyformni and acariformes. Argasi hamazoyidni and mites. Differential diagnosis of Ixodes ticks. Differential diagnosis arhasovyh hamazoyidnyh and ticks. Laboratory methods for diagnosis of scabies in animals.

Measures to combat parazytyformnymy mites. Psoroptozy, Acne animals and birds knemidokoptozy.

Methods of diagnosis sarkoptozy Animals (sarcoptic mange and notoedrozu). Treatment of animals by sarkoptozy and prevention. Differential diagnosis psoroptozy animals (psoroptozu, horioptozu and otodektozu). Diagnosis of Acne in animals. Treatment for Acne animals and preventive measures. Diagnosis knemidokoptoziv birds. Treatment of animals by knemidokoptoziv and prevention.

**Theme 2. Veterinary Entomology and entomozy animals. Blood-sucking insects and measures to combat them.** Gadfly animal diseases (hipodermatoz cattle, sheep estroz, rinestroz hastrofiloz and horses). Zoofilni and meat flies. Representatives of midges (horse-fly, mosquitoes, gnats, mokretsi, mosquitoes). Krovososky (melofahoz sheep). Malofahozy (puho- and tongs) and syfunkulyatozy animals.

Veterinary Entomology. Gadfly disease of sheep and goats. Zoofilni flies, pests of livestock products. Flies family Sarcophagidae. Representatives of midges and their parasitic values. Permanent ectoparasites of sheep. Syfunkulyatozy hematopinozy and animals. Malofahozy (tongs, lice, peroyidy) and syfonapterozy animals.

Diagnostic features horse-fly, mosquitoes, midges, mosquitoes and mokretsi. Diagnosis symuliotoksykozu in animals. Measures to combat midges representatives. Diagnostic features runtsya sheep. Diagnosis and lipoptenozu hipoboskozu in animals. Diagnostic signs of lice, tongs, lice, fleas, bedbugs and measures to combat them.

Diagnosis hematopinozu horses and pigs. Measures to combat ectoparasites constant. Diagnosis bovikolozu in ruminants, horses and pigs and tryhodektozu carnivores. Diagnosis syfonapterozu animals.

#### **Content module 4. protozoan diseases of animals.**

**Theme 1. Protozozy animals (babesiosis).** Definition and veterinary protozoology content, brief reference. The morphology, biology simplest, easiest and specificity of localization to animals, systematics simplest. Epizootology protozoal disease pathogenesis, immunity and diagnostics. General principles and specific immunosuppressive therapy for protozoal diseases, prevention protozooziv. Babesiosis of cattle, sheep, dogs, horses, teyleriozy ruminants, poultry malaria.

Morphological and biological features sporovykiv, ciliates and sarkodzhhutykovykh. Babesiosis, teyleriozy. Development of preventive measures at protozoozah animals.

Diagnosis of babesiosis in animals. Treatment of animals for Babesiosis and prevention. Diagnosis teyleriozu cattle. Diagnosis of malaria in poultry. Treatment of animals by teyleriozu.

**Theme 2. Izosporozy coccidiosis and animals. Diseases caused by flagellated and ciliated.** Overview of coccidia, their taxonomy, biology and morphology.

Eymerioz chickens, rabbits, cattle and sheep. Tsystoizosporozy. Toxoplasmosis. Sarkotsystoz. Cryptosporidiosis.

Morphological and biological features fymerioziv animals. Treatment of animals by eymerioziv and prevention. Morphological and biological features tsystoizospor.

Treatment of animals by tsystoizosporozu and prevention. Morphological and biological characteristics of Toxoplasma. Treatment of animals for toxoplasmosis and prevention.

Morphological and biological features sarkotsyst. Treatment of animals by sarkotsystozu and prevention.

Izosporozy coccidiosis and animals.

Morphological and biological features forryptosporidydy animals. Diagnosis of cryptosporidiosis in calves. Treatment of animals for cryptosporidiosis and prevention.

Trichomoniasis animals. Trypanosomiasis (coupling of horses diseases). Histomonoz birds. Balantydioz pigs.

Morphological and biological features etc.ryhomonad. Diagnosis of trichomoniasis in animals. Treatment of animals for trichomoniasis.

Morphological and biological features trypanosomes. Diagnosis coupling disease in horses. Preventive measures for disease coupling of horses.

Morphological and biological features of gistomonad and balantydidy. Diagnosis histomonozu balantydiozu in poultry and swine. Treatment of animals by histomonozu and balantydiozu and prevention.

Sarkomastihoforozy trypanosomiasis and animals. Ciliary and flagellum - protozooziv pathogens in animals.

Anaplasmosis cattle and small cattle. Eperytozoonoz animals. Borreliosis pigs. General and specific control measures protozoozamy.

#### 4. Structure of discipline

Names of content modules and topics	Number of hours											
	Full-time						Part-time					
	Us- th	including					all	including				
		l	n	lab	in d	SR		l	n	lab	in d	SR
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Module 1. Nematodosis animals.</b>												
<i>Content module 1. Stronhilyatozy animals.</i>												
<b>Theme 1.</b> Gastrointestinal stronhilyatozy animals. Stronhilyatozy Respiratory animals.	10	2		2		6						
<b>Together for the content modules 1</b>	<b>10</b>	<b>2</b>		<b>2</b>		<b>6</b>						
<i>Content module 2. Spiruratozy, rabdytatozy akantotsefalozy and animals.</i>												
<b>Theme 1.</b> Spiruratozy and tryhuorozy animals.	<b>8</b>	2		2		4						
<b>Theme 2.</b> Filariasis, rabdytatozy akantotsefalozy and animals.	<b>14</b>	2		6		6						
<b>Together for the content modules 2</b>	<b>22</b>	<b>4</b>		<b>8</b>		<b>10</b>						
<b>Total hours</b>	<b>32</b>	<b>6</b>		<b>10</b>		<b>16</b>	-	-	-	-	-	
<b>Module 2. Acarology and Veterinary Entomology.</b>												
<i>Content module 3. Arahnozy and animals entomozy</i>												
<b>Theme 1.</b> Parazytyformni andkaryformni akarozy mites and animals.	14	2		6		6						
<b>Theme 2.</b> Veterinary Entomology and entomozy animals. Blood-sucking insects and measures to combat them.	20	2		6		12						
<b>Total for 3 content</b>	<b>34</b>	<b>4</b>		<b>12</b>		<b>18</b>						



<b>modules</b>												
<b>Total hours</b>	<b>34</b>	<b>4</b>		<b>12</b>		<b>18</b>						
<b>Module 3. Veterinary protozoology.</b>												
<i>Content module 4. protozoan diseases of animals.</i>												
<b>Theme 1.</b> Protozozy animals (babesiosis).	10	2		2		6						
<b>Theme 2.</b> Izosporozy coccidiosis and animals. Diseases caused by flagellated and ciliated.	14	2		6		6						
<b>Total for 4 content modules</b>	<b>24</b>	<b>4</b>		<b>8</b>		<b>12</b>						
INDZ		-	-	-		-		-	-	-		
<b>Total hours</b>	<b>90</b>	<b>14</b>		<b>30</b>		<b>46</b>						

### 5. Themes and lectures plan

num be r / p	Topic	Number Hours
1	<p><b>Topic 1. Gastrointestinal stronhilyatozy animals. Stronhilyatozy Respiratory animals.</b></p> <p>Plan:</p> <ol style="list-style-type: none"> <li>1. Morphological and biological characteristics stronhilyat their systematic polozheennya.</li> <li>2. Stronhilidozy tsiatostomidozy and horses.</li> <li>3. Gastrointestinal stronhilyatozy animals and birds.</li> <li>4. Dyktiokauloz ruminants.</li> <li>5. Prtostronhilidozy animals and birds.</li> </ol>	2
2	<p><b>2. Subject Spiruratozy tryhurozy and animals.</b></p> <p>Plan:</p> <ol style="list-style-type: none"> <li>- Telyaziozy animals.</li> <li>2. Spiruratozy birds.</li> <li>3. Trichinosis animals.</li> <li>4. Tryhuroz pigs, ruminants and carnivores.</li> </ol>	2
3	<p><b>3. Subject filariasis, rabdytatozy akantotsefalozy and animals.</b></p> <p>Plan:</p> <ol style="list-style-type: none"> <li>1. Setariosis and stefanofilyarioz ruminants.</li> </ol>	2

	<ol style="list-style-type: none"> <li>2. Dirofilariasis carnivores.</li> <li>3. Parafilyarioz and onchocerciasis horses and ruminants.</li> <li>4. Strongyloidosis young animals.</li> <li>5. Makrakantorynhoz pigs.</li> <li>6. Polimorfoz filikoloz and poultry.</li> </ol>	
4	<p><b>Theme 4. Parazytyformni andkaryformni akarozy mites and animals.</b></p> <p>Plan:</p> <p>Systematic position mites. Diagnostic features Ixodes, arhasovyyh dermanisusnyh and ticks.</p> <p>Sarkoptozy Animals (sarcoptic mange pigs, horses, notoedroz).</p> <p>Psoroptozy animals (psoroptoz sheep, horses, rabbits, cattle, horioptozy, otodektoz).</p> <p>Knemidokoptoz birds.</p> <p>Acne animals.</p>	2
5	<p><b>Theme 5. Veterinary Entomology and entomozy animals. Blood-sucking insects and measures to combat them.</b></p> <p>Plan:</p> <ol style="list-style-type: none"> <li>1. Gadfly animal diseases (hipodermatoz cattle, sheep estroz, rinestroz hastrofiloz and horses).</li> <li>2. Zoofilni and meat flies.</li> <li>3. Representatives of midges (horse-fly, mosquitoes, gnats, mokretsi, mosquitoes).</li> <li>4. Krovososky (melofahoz sheep).</li> <li>5. Malofahozy (puho- and tongs) and syfunkulyatozy animals.</li> </ol>	2
6	<p><b>6. Subject Protozoozy animals (babesiosis).</b></p> <p>Plan:</p> <ul style="list-style-type: none"> <li>- Definition and veterinary protozoology content, brief reference.</li> <li>- The morphology, biology simplest, easiest and specificity of localization to animals, systematics simplest.</li> <li>- Epizootology protozoal disease pathogenesis, immunity and diagnostics.</li> <li>- General principles and specific immunosuppressive therapy for protozoal diseases, prevention protozooziv.</li> <li>- Babesiosis of cattle, sheep, dogs, horses, teyleriozy ruminants, poultry malaria.</li> </ul>	2
7	<p><b>7. Subject coccidiosis and izosporozy animals. Diseases caused by flagellated and ciliated.</b></p> <p>Plan:</p> <ol style="list-style-type: none"> <li>1. Overview of coccidia, their taxonomy, biology and morphology.</li> <li>2. Eymerioz chickens, rabbits, cattle and sheep.</li> </ol>	2

	3. Toxoplasmosis. 4. Sarkotsystoz. 5. Trichomoniasis animals. Trypanosomiasis (coupling of horses diseases). 6. Histomonoz birds. 7. Balantydioz pigs.	
	<b>Together</b>	<b>14</b>

### 5. Topics laboratory classes

num be r / p	Topic	Number hours
1	Topic 1. <u>Occupational safety when performing parasitological studies, as well as dealing with invasive materials and animals affected by pathogens of invasive disease</u>	2
2	<b>Theme 2.</b> <u>Ecological and biological features of trematodes, cestodes.</u>	4
3	<b>Theme 3.</b> Ecological and biological peculiarities of nematodes and acanthecephalis .	4
4	<b>Theme 4.</b> Ways of isolating oocysts, eggs and larvae of parasites from the host's organism.Файл	4
5	<b>Theme 5.</b> Parasitological studies of animals.Файл	4
6	<b>Theme 6.</b> Parasitological studies of animals.Файл	4
7	<b>Theme 7.</b> Parasitological studies of objects of the environment.	4
8	<b>Theme 8.</b> Parasitological studies of intermediate and reservoir hosts of zoo parasites.	2
9	<b>Theme 9.</b> <u>Investigation of animals on anthroposoonosis.Файл</u>	2
	<b>Together</b>	<b>30</b>

### 6. Independent work

num be r / p	Topic	Number hours
1.	<b>Theme 1.</b> Hanhuleterakidoz geese. Skryabinemoz sheep. Neoaskarydoz calves. Toxocariasis cats. Ostertahioz ruminants. Ezofahostomoz animals. Olulanoz pigs. Protostronhiloz sheep. Myullerioz sheep and goats. Dyktiokauloz calves. Metastronhiloz pigs. Histrihoz birds.	6
2.	<b>Theme 2.</b> Kapilyariozy birds. Methods zazhyttyevoyi and postmortem diagnosis of trichinosis in animals. Prevention of trichinosis in animals.	6

3.	<b>Theme 3.</b> Methods zazhyttyevoyi and posthumous diagnosis nematodosis animals. General and special measures for nematodosis animals. Bioecological prevention nematodosis.	4
4.	<b>Theme 4.</b> Differential diagnosis of Ixodes ticks. Differential diagnosis arhasovyh hamazoyidnyh and ticks. Laboratory methods for diagnosis of scabies in animals.	6
5.	<b>Theme 5.</b> Diagnostic features horse-fly, mosquitoes, midges, mosquitoes and mokretsiv. Diagnosis symuliotoksykozu in animals. Measures to combat midges representatives. Diagnostic features runtsya sheep. Diagnosis and lipoptenozu hipoboskozu in animals. Diagnostic signs of lice, tongs, lice, fleas, bedbugs and measures to combat them. Diagnosis hematopinozu horses and pigs. Measures to combat ectoparasites constant. Diagnosis bovikolozu in ruminants, horses and pigs and tryhodektozu carnivores. Diagnosis syfonapterozu animals.	6
6.	<b>Theme 6.</b> Diagnosis of babesiosis in animals. Treatment of animals for Babesiosis and prevention. Diagnosis teyleriozu cattle. Diagnosis of malaria in poultry. Treatment of animals by teyleriozu.	6
7.	<b>Theme 7.</b> Morphological and biological features forryptosporidy animals. Diagnosis of cryptosporidiosis in calves. Treatment of animals for cryptosporidiosis and prevention.	6
8.	<b>Subject 8.</b> Anaplasmosis cattle and small cattle. Eperythroozoonoz animals. Borreliosis pigs. General and specific control measures protozoozamy.	6
	<b>Together</b>	<b>46</b>

## 7. Teaching methods

### 1. Methods of learning source of knowledge:

1.1. *Verbal*: Story, explanation, work with the book (reading, writing out, summarizing, making tables, supporting lecture notes, etc.).

1.2. *Visual*: Demonstration, illustration, observation.

1.3. *Practical*: Laboratory technique, practical work.

### 2. Methods of studying the nature of logic knowledge.

2.1. *Analytical*

2.2. *The inductive method*

2.3. *deductive method*

3. Methods of studying the nature and level of independent intellectual activity of students.

3.1. *Part-search (heuristic)*

3.2. *exploratory*

**4. Active learning methods** - the use of teaching aids, excursions, group studies, self-assessment of knowledge, use of training and control tests using reference lectures.

**5. Interactive teach technology** - using multimedia technologies.

### 8. Control methods

1. Rating control a 100-point scale assessment ECTS
2. Implementation of the interim control during the semester (intermediate certification)
3. Polikryterialna assessment of current students:
  - the level of knowledge demonstrated in practical laboratory and seminars;
  - activity when discussing issues submitted to classes;
  - results of performance and protection of laboratory work;
  - independent processing threads in general or specific issues;
  - test results;
  - writing assignments during the tests;

### 9. Distribution of points receiving students

Routine testing and independent work							CPC	However, for modules and CPC	Ates-Trays	results tion test - exam	Sum
Module 1 - 12 points			Module 2 - 14 points		Module 3 - 14 points						
Content module 1	Content module 2		Content module 3	Content module 4							
T1	T2	T3	T4	T5	T6	T7	15	55 (40 + 15)	15	30	100
4	4	4	7	7	7	7					

### Grading scale: national and ECTS

Total points for all the educational activities	Assessment ECTS	Evaluation of national scale	
		for examination, course project (work), practice	for scoring
90 - 100	<b>AND</b>	perfectly	Accepted
82-89	<b>IN</b>	okay	
74-81	<b>WITH</b>		
64-73	<b>D</b>		
60-63	<b>IS</b>	satisfactorily	

35-59	<b>FX</b>	unsatisfactorily with possibility of re-drafting	not reckoned with the possibility of re-drafting
0-34	<b>F</b>	unsatisfactorily with the mandatory repeated study of discipline	not reckoned with the obligatory re-learning courses

### **Methodical support**

1. Dakhno I.S., Dakhno G.P., Negreba Y.V., Lazorenko L.M, Savchuk I.M. Bioecological zooparasitology. Methodical instructions for conducting laboratory-practical classes. Sumy NAU. Sumy, 2008. - 21 p.

### **11. Recommended literature**

#### **Basic**

1. Secretary K.V., Svarchevsky KV. Fundamentals of ecological zooparasitology. Lviv .: Universum Publishing, 2007. 358 p.
2. Nevyadomska K.A General parasitology. Kyiv .: Higher School, 2006. 483 p.
3. Galat V.F. Berezovsky AV, Soroka NM Parasitology and invasive diseases of animals. Kyiv .: Higher education, 2003. 464 p.
4. Galat V.F, Berezovsky AV, Soroka NM Prus MP Parasitology and invasive animal diseases. Kyiv .: Higher education, 2004. 238 p.
5. Dakhno I.S, Berezovsky AV, Galat VF Atlas of animal helminths. Vetinform, 2001. 118 p
6. Dakhno I.S, Dakhno YI Ecological helminthology: Textbook. Manual. Sumy .: Kozatsky V. 2010. 220 p.

#### **Auxiliary**

1. Verbitsky P.I., Dostoevsky. P.I. Handbook of veterinary medicine. Kyiv .: Urozhay, 2004. 1280 p.
2. Galat V.F., Berezovsky AV, Soroka N.M., Prus MP Invasive diseases of pigs: Educational. Kyiv .: NAU, 2006. 94 p.
3. Galat V.F., Berezovsky AV, Soroka NM Prus M.P. Invasive diseases of horses: A textbook. Kyiv .: NAU, 2008. 154 p.
4. Boch J., Supperer R. Veterinarmedizinische Parasitologie. Berlin and Hamburg .: Verlag Paul Parey, 2002. 906 p.