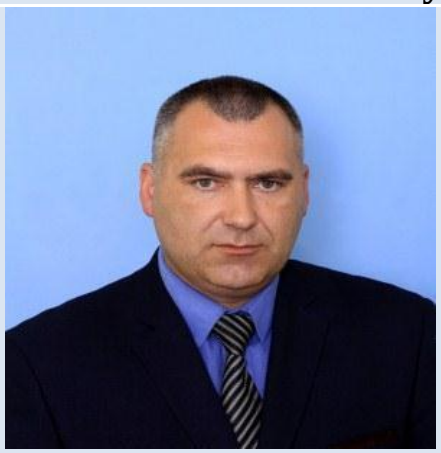
EDUCATIONAL COMPONENT SYLLABUS

OBSTETRICS, GYNECOLOGY AND ANIMAL REPRODUCTION BIOTECHNOLOGY

specialty	**211 – Veterinary medicine**	**the obligation of discipline**	**obligatory component**
educational program	**veterinary medicine**	**faculty**	**veterinary medicine**
educational level	**unlimited**	**department**	**veterinary surgery and reproduction**

LECTURERS

Fedorenko Serhii Yakovych



Higher education – specialty: Veterinary medicine
Scientific degree - Doctor of Veterinary Sciences, specialty 16.00.07 - Veterinary obstetrics
Academic rank – Professor
Work experience – 25 years
Indicators of professional activity on the course topic:

- Co-author of 2 textbooks and 6 methodological recommendations;
- 20 years of scientific experience;
- co-author of thematic publications in the scientometric database Web of Science (more than 10).

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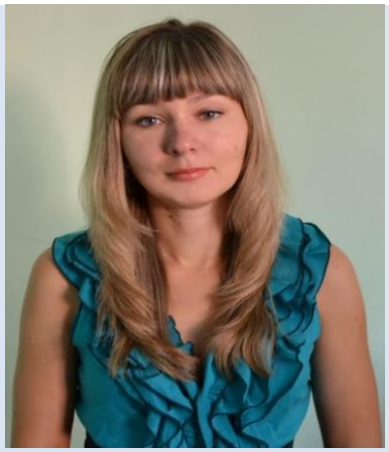
Naumenko Svitlana Valeriivna



Higher education – Kharkiv State Zooveterinary Academy, 2005, specialist, qualification – doctor of veterinary medicine.
Scientific degree - Doctor of Veterinary Sciences, specialty 16.00.07 - Veterinary obstetrics
Academic rank – Professor
Work experience – 20 years
Indicators of professional activity on the course topic:

- author of over 140 scientific works, including 13 articles included in the scientometric database Scopus and Web of Science, 114 articles in scientific professional publications of Ukraine, 2 textbooks, 4 monographs and 2 chapters of collective monographs, 46 abstracts of reports from international and all-Ukrainian scientific and practical conferences, 8 scientific and methodological recommendations and 2 technical conditions for veterinary drugs;
- 20 years of scientific experience.

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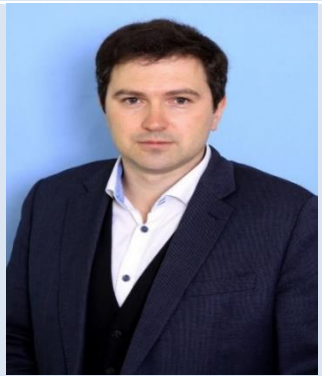
Siehodin Oleksandr Borysovych



Higher education – Kharkiv Zooveterinary Institute, 2001, specialist, qualification – doctor of veterinary medicine.
Scientific degree – Candidate of Veterinary Sciences (Ph.D.), specialty 16.00.05 – Veterinary surgery
Academic rank – Docent
Work experience – 24 years
Indicators of professional activity on the course topic:

- author and co-author of over 30 scientific works, including: textbooks in English – 3; chapter in a collective monograph – 1, patent for a utility model – 1.

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Koshevoi Vsevolod Ihorovych

Higher education – Kharkiv State Zooveterinary Academy, 2019, Master of science, qualification – doctor of veterinary medicine.
Scientific degree – Doctor of Philosophy, specialty – 211 Veterinary medicine, State Biotechnological University, 2023.
Work experience – 2 years
Indicators of professional activity on the course topic:

- author of over 100 scientific works, including 6 articles included in the scientometric database Scopus, 45 articles in scientific professional publications of Ukraine (including 16 in English), 1 monograph and 2 chapters of collective monographs, 42 abstracts of reports of international and all-Ukrainian scientific and practical conferences, 6 scientific and methodological recommendations and 1 technical conditions for a veterinary drug;
- 10 years of scientific experience;
- reviewer of scientific articles in journals included in international scientometric databases (Scopus – World's Veterinary Journal; Web of Science – Uttar Pradesh Journal of Zoology; etc.).

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GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

Goal	studying modern data on animal reproduction, mastering and mastering modern methods and the latest means of research, diagnosis, treatment and prevention of pathologies that arise in the organs of the reproductive system of animals
Format	lectures, practical classes, independent work, individual tasks, teamwork
Scope and forms of control	14 ECTS credits (420 hours): 58 hours of lectures, 134 hours of laboratory work, 168 hours of independent work; 30 hours of medical history, 30 hours of practical training, current control; final control - undifferentiated test, medical history, exam
Teacher requirements	timely completion of tasks, activity, teamwork
Enrollment conditions	according to the curriculum

COMPLIANCE WITH THE EDUCATION STANDARD AND EDUCATIONAL PROGRAM

Competences	GC 2. Ability to apply knowledge in practical situations. GC 3. Knowledge and understanding of the subject area and profession. GC 6. Skills in using information and communication technologies. GC 8. Ability to learn and master modern knowledge. GC 9. Ability to make informed decisions. SC 2. Ability to use tools, special devices, instruments, laboratory equipment and other technical means to perform the necessary manipulations during professional activities. SC 3. Ability to comply with occupational safety, asepsis and antisepsis rules during professional activities. SC 4. Ability to conduct clinical studies to draw conclusions about the condition of animals or to establish a diagnosis. SC 6. Ability to select, package, fix and ship 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 to treat animals of different classes and species suffering from	**Program learning outcomes**	PLO 1. Know and use veterinary medicine terminology correctly. PLO 4. Collect anamnestic data during registration and examination of animals, make decisions on choosing effective methods of diagnosis, treatment and prevention of animal diseases. PLO 6. Develop quarantine and health measures, methods of therapy, prevention, diagnosis and treatment of diseases of various etiologies. PLO 7. Formulate conclusions regarding the effectiveness of selected methods and means of keeping, feeding and treating animals, prevention of infectious and non-infectious diseases, as well as production and technological processes at enterprises for keeping, breeding or operating animals of various classes and species. PLO 8. Monitor the causes of the spread of diseases of various etiologies and biological pollution of the environment with livestock waste, as well as materials and veterinary supplies. PLO 14. Understand the essence of the processes of manufacturing, storing and processing biological raw materials. PLO 15. Know the rules for storing various pharmaceuticals and biological products, the methods of their enteral or parenteral administration, understand the mechanism of their action, interaction and complex effect on the animal body. PLO 18. Carry out accounting reporting during professional activities. **be able**: 1. Use and decipher veterinary reproductive terminology. 4. Collect anamnestic data during registration and examination of animals for obstetric, gynecological, andrological, and mammological pathologies, make decisions on the choice of effective methods of diagnosis, treatment and prevention of these animal diseases. 6. To propose diagnostic, therapeutic, preventive and other measures based on biochemical studies of biological substrates of animals of various species. 7. Monitor the effectiveness of diagnostic, therapeutic, preventive and other measures based on the results of treatment of pathologies of the reproductive system of animals. 8. Identify the causes of the spread of obstetric, gynecological, andrological and mammological diseases.

	non-communicable, infectious and invasive diseases. SC 9. Ability to perform obstetrical-gynecological and surgical procedures and operations.		14. Understand the essence of obtaining, assessing the quality, diluting and storing sperm, eggs, embryos, etc. 15. Select the necessary drugs in the treatment of diseases of the reproductive system of animals, choose the optimal routes of their administration, use computer programs for dosage adjustments at different stages of pathology development. 18. To prepare, study and interpret the records of the journals "Matings and calvings", "Artificial insemination techniques", "Outpatient journal". To be able to fill out a medical history.		
STRUCTURE OF THE EDUCATIONAL COMPONENT					
Chapter 1. Propaedeutics, physiology and biotechnology of reproduction. Reproductive function in animals. Structural, functional, clinical parallels, their applied significance in reproductology					
Lecture 1	**Obstetric, gynecological, andrological and biotechnological propaedeutics.**	**Laboratory and practical lesson (LPL 1)**	Instruction on compliance with safety and personal hygiene requirements.	**Independent work**	Sounds, physical parameters. Thermal radiation by the body. Ultrasound, use by some living organisms. Ultrasound, Doppler effect. Ultrasound, use in human and veterinary medicine. Electrical conductivity of body tissues. Magnetic fields of the body. Light, physical parameters. Information technologies in reproductive medicine. Reproduction of living organisms. Features for flora and fauna. Reproductive endocrinology. Morphology of the reproductive system of females and males. The sexual cycle and methods of its regulation.
Lecture 2	**Neuro-endocrine regulation of reproductive function in females.**	**LPL 2**	Scientific justification of routes of administration of drugs used in obstetrics, gynecology, and andrology		
Lecture 3	**Sexual (estrous) cycle and features of its manifestation in females of different species**	**LPL 3**	Andrological propaedeutics		
Lecture 4	**Neuroendocrine regulation of male reproductive function**	**LPL 4**	Neuroendocrine regulation of the sexual cycle in females.		
		LPL 5	Neuroendocrine regulation of the sexual cycle in females		
		LPL 6	Diagnostics of sexual function in females		
		LPL 7	Diagnostics of sexual function in females		
		LPL 8	Diagnostics of sexual function in males		
Chapter 2. Animal reproduction biotechnology					
Lecture 5	**Sperm. Methods of obtaining. Scientific justification, requirements for methods of**	**LPL 9**	Scientific justification, requirements for methods of obtaining sperm		Sex cells. Features of movement. Sex cell. Chromosome set.

	obtaining sperm from fertile animals.		from fertile animals.	**Independent work**	Sex cells. Influence of environmental factors. Cryogenic agents. Characteristics. Cryoequipment. Characteristics. Sperm cryopreservation. Historical data. Cryoprotectants, their role. Sperm depreservation. Requirements. Artificial insemination of animals. Fertilization. External and internal. Microscopic manipulations of sperm injection into the egg Microscopic manipulations of sperm injection into the egg. Latest data on the use of sexed sperm from breeding animals.
Lecture 6	**Dilution, cryopreservation, storage, transportation.**	**LPL 10**	Standards of freshly obtained sperm of reproductive animals of different species. Sequestered (sexed, separated) sperm. Technological processing of sperm.		
Lecture 7	**Artificial insemination of animals.**	**LPL 11**	Sperm quality assessment.		
Lecture 8	**Embryo transplantation.**	**LPL 12**	Short-term sperm storage technology.		
		LPL 13	Sperm. Dilution. Methods of sperm cryopreservation.		
		LPL 14	Artificial insemination of females. Tools for artificial insemination.		
		LPL 15	Technique of artificial insemination of females.		
		LPL 16	Embryo transplantation.		
Chapter 3. Physiological and pathological obstetrics. Veterinary perinatology					
Lecture 9	Veterinary perinatology	**LPL 17**	Fertilization and pregnancy in animals.	**Independent work**	Pregnancy as a process. Physiology and pathology. Placentology. Characteristics of the embryo, fetus in animals. Embryonic stem cells. Definition, production, cloning of organs. Stem cells. Problems and achievements. Sex of the embryo, fetus. Definition. Problems. Amniotic, allantoic fluid. Characteristics. Fetal membranes. Characteristics.
Lecture 10	Antennal physiology.	**LPL 18**	Pregnancy diagnostics.		
		LPL 19	Pregnancy diagnostics.		
Lecture 11	Antennal pathology.	**LPL 20**	Physiology of the antenatal period.		
Lecture 12	Intranatal physiology and pathology.	**LPL 21**	Placentology.		
Lecture 13	Postnatal period.	**LPL 22**	Pathology of the antenatal period.		

Lecture 14	Obstetric medical examination, spread of obstetric pathology.	**LPL 23**	Physiology of the intranatal period.		Types of placentas. Macro- and microstructure. Function. Computer programs for determining the state of pathologies. Genera. Postnatal period Characteristics for animals (domestic, living in the yard, flying). Causes of occurrence. Existing theories. Synchronization, induction. Pathology. Monitoring of the course. Pathology. Gonadometropathies. Obstetric sepsis. Diagnostics. Scientific substantiation of pharmaceuticals.
Lecture 15	Gonadopathies and metropathies.	**LPL 24**	Pathology of the intranatal period.		
		LPL 25	Physiology of the postpartum period.		
		LPL 26	Postpartum pathology.		
		LPL 27	Postpartum pathology.		
		LPL 28 **LPL 29**	Methods of diagnosis, treatment and prevention of postpartum metropathies.		
		LPL 30 **LPL 31**	Methods of diagnosis, treatment and prevention of postpartum gonadopathy.		
Chapter 4. Neonatology. Mastology					
Lecture 16	**Neonatal physiology.**	**LPL 32**	Physiological features of newborns.	**Independent work**	Features of newborn domestic and wild animals. Adaptive mechanisms. Pathology. Diagnostics. Therapy Mastology. Features of the organ – colostral immunity, dairy products. Pathology. Diagnostics. Therapy. Problems and achievements. Milk quality standards. European requirements. Ultrasonographic and thermographic diagnostics of mastitis. The use of modern methods for the diagnosis of mastitis. (standards, milk scanners). Pharmacoultraphoresis, method of application. Colostrometry. Methodology. Comprehensive monitoring of milk productivity.
Lecture 17	**Neonatal pathology.**	**LPL 33**	Determining the condition of newborns.		
Lecture 18	**Mastology.**	**LPL 34**	Neonatal pathology. Morphological anomalies of newborns.		
Lecture 19	**Mammary gland pathology.**	**LPL 35**	Immunodeficiency. Method of determining Ig in the blood serum of newborns. Methodology for using colostrum meters.		
		LPL 36	Fetal hypoxia. Hypotrophy, other diseases.		
		LPL 37			
		LPL 38			

		LPL 39	Examination of the mammary gland during the dry period and during lactation. Pathology of the mammary gland. Diagnostics.		
		LPL 40	Pathology of the mammary gland. Animal therapy. Examination of the mammary gland during the dry period and during lactation.		
		LPL 41			
		LPL 42	Mammary gland pathology. Diagnosis.		
		LPL 43			
Chapter 5. Veterinary gynecology and andrology					
Lecture 20	Veterinary gynecology.	**LPL 44**	Infertility of females. Clinical methods of investigation. Economical discounts.	**Independent work**	Computer monitoring of reproduction. Gynecological illness. Diagnosis, therapy, prevention. Ultrasonography, thermography, colpocytoscopy. Methodology. Impotence. Problems, breadth. Andrological medical examination. Methodology. Computer program for assessing the reproductive capacity of a male. Ultrasonographic, thermographic tracking. Post-cytography technique. Andrological drugs.
Lecture 21	Specific gynecological diseases of animals. Paths of intensification of created creatures.	**LPL 45**	Gynecological medical examination.		
Lecture 22	Veterinary andrology.	**LPL 46**	Infertility of females. Classification of infertility.		
		LPL 47	Pathologies of external organs.		
		LPL 48	Gonadopathies. Diagnosis and therapy of animals.		
		LPL 49			
		LPL 50	Metropathies. Diagnosis and therapy of animals.		
		LPL 51	Andrology. Diagnosis of impotence.		
		LPL 52	Methods of complex therapy and prevention of andrological pathology.		
Chapter 6. Types of obstetrics, gynecology and biotechnology creation					

Lecture 23	**The sexual (estrous) cycle and its particularity will be manifested in cows and heifers. Features of obstetric pathology.**	**LPL 53**	Features of the sexual cycle and its manifestation in cows and heifers.	**Independent work**	*Cattle reproduction.* Characteristics of the embryo, fetus in cows. Stem cells. Problems and achievements. Obstetric sepsis. Diagnostics. Scientific justification for the use of pharmaceuticals. Drugs in livestock farming. Ultrasonography, thermography, colpocytoscopy. Methodology. *Horse reproduction.* Characteristics of the embryo, fetus in mares. Definition. Problems. Fetal membranes of mares. Features. Features of newborn foals. Adaptive mechanisms. Pathology. Diagnostics. Therapy Features of the organ – colostral immunity, dairy products. Mammary gland pathology. Diagnosis. Therapy. Problems and achievements. Gynecological diseases. Diagnosis, therapy, prevention. Andrological diseases. Diagnosis, therapy. *Pig reproduction.* Morphology of the reproductive system of pigs and boars. Sexual cycle, features Characteristics of the embryo, fetus in pigs. Definition. Problems. Fetal membranes of pigs. Features. Features of newborn piglets. Adaptive mechanisms. Pathology. Diagnostics. Therapy. Features of the organ – colostral immunity, dairy products. Andrological diseases. Diagnostics, therapy. *Sheep and goat reproduction.* Morphology of the reproductive system. Sexual cycle, features.
Lecture 24	**Cattle mastology. Cattle infertility.**	**LPL 54**	Pathology of the intranatal and postpartum period of cows and heifers.		
Lecture 25	**Horse reproduction.**	**LPL 55**	Pathology of the mammary gland. Animal therapy.		
Lecture 26	**Pig reproduction.**	**LPL 56**	Infertility. Gynecological examination. Gynecological diseases. Diagnosis and therapy of cows and heifers.		
Lecture 27	**Reproduction of sheep and goats.**	**LPL 57**	Pregnancy. Features of diagnostics in mares. Features of physiology and pathology of the antenatal and intranatal periods in mares.		
Lecture 28	**Reproduction of dogs and cats.**	**LPL 58**	Neonatal pathology. Mammary gland pathology.		
Lecture 29	**Reproduction of fur-bearing animals and birds.**	**LPL 59**	Features of the structure of the reproductive organs of pigs and boars. Pregnancy. Features of diagnostics in pigs. Pathology of the mammary gland.		
		LPL 60	Gynecological diseases. Diagnosis and therapy of gilts. Methods of complex therapy and prevention of andrological pathology.		
		LPL 61	Features of the structure of the reproductive organs of sheep and goats. Pregnancy. Features of diagnosis in sheep and goats.		
		LPL 62	Pathology of the mammary gland.		

			Gynecological diseases. Diagnosis and therapy of animals. Methods of complex therapy and prevention of andrological pathology.		Characteristics of the embryo, fetus. Definition. Problems. Fetal membranes. Features. Features of newborns. Adaptive mechanisms. Pathology. Diagnostics. Therapy. Features of the organ – colostral immunity, dairy products. Andrological diseases. Diagnostics, therapy. *Reproduction of dogs and cats.* Morphology of the reproductive system. Reproductive cycle, features Characteristics of the embryo, fetus. Definition. Problems. Fetal membranes. Features. Features of newborns. Adaptive mechanisms. Pathology. Diagnostics. Therapy. Features of the organ - colostral immunity, dairy products. Andrological diseases. Diagnostics, therapy. *Reproduction of fur animals and poultry.* Morphology of the reproductive system. Reproductive cycle, features Characteristics of the embryo, fetus. Definition. Problems. Fetal membranes. Features. Features of newborns. Adaptive mechanisms. Pathology. Diagnostics. Therapy. *Processes occurring in the reproductive system of birds*. Features of follicle maturation and ovulation Promotion and preservation of sperm in the reproductive system of female birds. Hatching and incubation.
		LPL 63	Features of the structure of the reproductive organs of small animals (dogs, cats).		
		LPL 64	Features of pregnancy, childbirth and the postpartum period in dogs and cats.		
		LPL 65	Features of newborns and their care. Mammary gland pathologies typical for small animals. Gynecological and andrological pathologies of small animals.		
		LPL 66	Features of the structure of the reproductive organs of fur-bearing animals. Features of the course of pregnancy, childbirth and the postpartum period.		
		LPL 67	Features of the reproductive function of birds.		

BASIC, ADDITIONAL LITERATURE AND METHODOLOGICAL MATERIALS

Basic literature:

1. Iablonskyi V.A. Praktychne akusherstvo, hinekolohiia ta biotekhnolohiia vidtvorennia tvaryn z osnovamy androlohii / Yablonskyi V.A. — K.: Meta, 2002. — 319s.: il.
2. Veterynarne akusherstvo, hinekolohiia ta biotekhnolohiia vidtvorennia tvaryn z osnovamy androlohii. Za red. V.A.Iablonskoho ta S.P.Khomyna.- Pidruchnyk.– Vinnytsia: Nova Knyha, 2006. -592 s.

Additional literature:

1. Biotekhnolohichni i molekuliarno-henetychni osnovy vidtvorennia tvaryn / V.A. Yablonskyi, S.P. Khomyn, V.I. Zaviriukha ta in.] ; pid zah. red. Yablonskoho V.A., O.I. Serhiienka ta R.S. Stoika. – Lviv: TzOV "VF «Afisha»", 2009. – 218 s.: il.
2. Veterynarna perynatolohiia: navch. posibnyk dlia studentiv vyshchykh navchalnykh zakladiv / [V.P. Koshovyi, M.M. Ivanchenko ta in.] ; za zah. red. V.P. Koshovoho. – Kharkiv: RVV KhDZVA, 2008. – 465 s.
3. Koshovyi V.P. Akushersko-hinekolohichna patolohiia u koriv: Navch. posib. dlia stud. vyshch. navch. zakladiv. – Kh.: Zoloti storinky, 2004. – 156 s.
4. Liubetskyi M.D. Orhanizatsiia i tekhnika vidtvorennia silskohospodarskykh tvaryn / Liubetskyi M.D., Khokhlov A.M., Koshovyi V.P. – K.: Vyshcha shkola, 1984. – 145 s.
5. Hryshko D.S. Lektsii z veterynarnoho akusherstva: navchalnyi posibnyk. Kharkiv: Prapor, 2003. 400 s.
6. Patolohiia vahitnosti u tvaryn / V. P. Koshovyi, M. M. Ivanchenko, P. M. Skliarov ta in. za redaktsiieiu V. P. Koshovoho – Kharkiv: Vydavnytstvo Sheininoi O. V. 2009. – 276s.
7. Berezovskyi A.V., Kharenko M.I. (Red.). Fiziolohiia ta patolohiia rozmnozhennia dribnykh tvaryn: navchalnyi posibnyk (2-e vydannia, pereroblene i dopovnene). Zhytomyr: Polissia, 2017. 392 s.
8. Mazurkevych A.I., Karpovskyi V.I. (Red.). Fiziolohiia tvaryn: pidruchnyk. Vinnytsia: Nova Knyha, 2010. 424 s.
9. Iablonskyi V.A. Biotekhnolohiia vidtvorennia tvaryn / Yablonskyi V.A. – K.: Arystei, 2004. – 296 s.
10. Problemy vidtvorennia ovets i kiz ta shliakhy yikh vidtvorennia. Koshevoi V.P., Skliarov P.M., Naumenko S.V. Monohrafiia vydana dlia bakalavriv, mahistriv, vykladachiv vyshchykh navchalnykh zakladiv, naukovtsiv, praktykuiuchykh likariv veterynarnoi medytsyny i fakhivtsiv haluzi vivcharstva ta kozivnytstva. Vydavnytstvo: Kharkiv – Dnipropetrovsk: Hamaliia, 2011.
11. Fiziolohiia ta patolohiia molochnoi zalozy u tvaryn. Navchalnyi posibnyk za zah. red. A.V. Berezovskoho ta M.I. Kharenka. – K.: DIA, 2018. 476 s. A.V. Berezovskyi, M.I. Kharenko, V.I. Liubetskyi, V.P. Koshevoi ta in.

Methodical support

1. Kompleksna diahnostyka ta terapiia koriv z pisliarodovym hipohonadyzmom: metodychni rekomendatsii / Koshovyi V.P., Fedorenko S.Ia. – Kh.: RVV KhDZVA, 2007. – 47 s.
2. Kompleksna diahnostyka ta terapiia koriv z postnatalnym hipoliuteolizom: metodychni rekomendatsii / V.P. Koshovyi, V.P. Besedovskyi. – Kh.: RVV KhDZVA, 2008. – 42 s.
3. Metodychni rekomendatsii po vidtvorenniu stada velykoi rohatoi khudoby molochnoho napriamu / Ukl. Burkat V.P., Kharuta H.H., Kraievskyi A.I. ta in. – Bila Tserkva: Ukrplemobiednannia, Bilotserkivsk. derzh. s.-h. instytut, 1995. – 28 s.
4. Perynatalna patolohiia u ovets i kiz. Diahnostyka ta profilaktyka: metodychni rekomendatsii / Koshovyi V.P., Skliarov P.M. – Kh.: RVV KhDZVA, 2008. – 78 s.
5. Retynoldefitsytna hipopotentsiia u samtsiv, yii diahnostyka ta profilaktyka: metodychni rekomendatsii / V.P. Koshovyi, S.V. Naumenko. – Kh.: RVV KhDZVA, 2008. – 59 s.
6. Perynatalna patolohiia u svynei. Diahnostyka ta profilaktyka : metodychni rekomendatsii / V.P. Koshovyi, M.M. Ivanchenko. – Kh.: RVV KhDZVA, 2008. – 63 s.
7. Akusherska, hinekolohichna ta androlohichna propedevtyka/ V.P. Koshevoi, Yu.P. Balym, M.M Ivanchenko, ta in. za redaktsiieiu V.P. Koshevoho – Kharkiv: 2013. – 54 s. Metodychni rekomendatsii.
8. Sperma buhaiv natyvna. Tekhnichni umovy : DSTU 3535-97. – K.: Derzhstandart Ukrainy, 1998. –24 s.
9. Ozonomistski preparaty ta yikh vykorystannia u veterynarnii reproduktolohii (metodychni rekomendatsii) /V.P. Koshevoi, S.Ia. Fedorenko, S.V. Naumenko, M.M. Ivanchenko, V.P. Besedovskyi, O.V. Onyshchenko, K.S. Besedovska, A.M. Pasternak, L.V. Chuiko, V.I. Koshevoi, P.M. Skliarov, V.I. Holota, H.V. Taran, M.N. Kravtsov. – Kharkiv, - 2014. – 81 s.
10. Kompleksni preparaty, stvoreni na osnovi nano-biomaterialiv ta yikh vykorystannia u veterynarnii reproduktolohii: metodychni rekomendatsii / V.P. Koshevoi, S.Ia. Fedorenko, S.V. Naumenko ta in. / Kh.: RVV KhDZVA, 2015. 102 s.
11. Instruktsiia zi shtuchnoho osimeninnia koriv ta telyts / [M.V. Zubets, V.P. Burkat, I.S. Volenko ta in.] ; zatv. nakazom Ministerstva ahrarnoi polityky Ukrainy 1 serpnia 2001 roku za №230. – K., 2001. – 38 s.
12. Shtuchne osimeninnia velykoi rohatoi khudoby : instruktsiia – rehionalne vydannia / [Bezuhlyi M.D., Ostashko F.I., Lolia V.V. ta in.] ; Kharkivskyi biotekhnolohichnyi tsentr ta MNVO „Embrion". – Kh, 2001. – 32 s.

GRADING SYSTEM

SYSTEM		POINTS	ACTIVITY THAT IS ASSESSED
Final evaluation	100 ECTS points (standard)	up to 50	50% of the average grade for chapters
		up to 50	final testing
Rating of section	100-point total	up to 50	written answers to questions
		up to 20	oral answers in laboratory and practical classes
		up to 30	result of mastering the independent work block

NORMS OF ACADEMIC ETHICS AND INTEGRITY

All participants in the educational process (including students) must adhere to the code of academic integrity and the requirements stipulated in the regulation "On Academic Integrity of Participants in the Educational Process of SBTU": to demonstrate discipline, good manners, respect each other's dignity, show kindness, honesty, and responsibility.