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 reproductology**

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;
- 20 years of scientific experience.

phone	**+380979118636**	**e-mail**	**0979118636@btu.kharkov.ua**	**remote support**	**Moodle**

GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT (DISCIPLINE)

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	13 ECTS credits (390 hours): 44 hours of lectures, 122 hours of laboratory work, 164 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

COMPLEMENTARY EDUCATION STANDARDS AND CURRICULUM			
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 non-communicable, infectious and invasive diseases. SC 9. Ability to perform obstetrical-gynecological and surgical procedures and operations.	**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. 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 (DISCIPLINE)

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 1 (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.
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		Electrical conductivity of body tissues. Magnetic fields of the body. Light, physical parameters. Information technologies in reproductive medicine.
Lecture 3	**Sexual (estrous) cycle and features of its manifestation in females of different species**	**LPL 3**	Andrological propaedeutics		Reproduction of living organisms. Features for flora and fauna.
Lecture 4	**Neuroendocrine regulation of male reproductive function**	**LPL 4**	Neuroendocrine regulation of the sexual cycle in females.		Reproductive endocrinology.
		LPL 5	Neuroendocrine regulation of the sexual cycle in females		Morphology of the reproductive system of females and males. The sexual cycle and methods of its regulation.
		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 obtaining sperm from fertile animals.**	**LPL 9**	Scientific justification, requirements for methods of obtaining sperm from fertile animals.	**Independent work**	Sex cells. Features of movement. Sex cell. Chromosome set. 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.
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.		Fertilization. External and internal. Microscopic manipulations of sperm injection into the egg
Lecture 8	**Embryo transplantation.**	**LPL 12**	Short-term sperm storage technology.		Microscopic manipulations of sperm injection into the egg.
		LPL 13	Sperm. Dilution. Methods of sperm cryopreservation.		Latest data on the use of sexed sperm from breeding animals.
		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. 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
Lecture 10	Antennal physiology.	**LPL 18**	Pregnancy diagnostics.		
		LPL 19	Pregnancy diagnostics.		
Lecture 11	Antennal pathology.	**LPL 20, 21**	Physiology of the antenatal period.		
Lecture 12	Intranatal physiology and pathology.	**LPL 22**	Placentology.		
Lecture 13	Postnatal period.	**LPL 23, 24**	Pathology of the antenatal period.		
Lecture 14	Obstetric medical examination, spread of obstetric pathology.	**LPL 25, 26**	Physiology of the intranatal period.		
Lecture 15	Gonadopathies and metropathies.	**LPL 27, 28**	Pathology of the intranatal period.		
		LPL 29, 30	Physiology of the postpartum period.		
		LPL 31	Postpartum pathology.		
		LPL 32	Postpartum pathology.		

		LPL 33-35	Methods of diagnosis, treatment and prevention of postpartum metropathies.		pharmaceuticals.
		LPL 36-38	Methods of diagnosis, treatment and prevention of postpartum gonadopathy.		
			Chapter 4. Neonatology. Mastology		
Lecture 16	**Neonatal physiology.**	**LPL 39**	Physiological features of newborns. Determining the condition of newborns.		Features of newborn domestic and wild animals. Adaptive mechanisms. Pathology. Diagnostics. Therapy
Lecture 17	**Neonatal pathology.**	**LPL 40**	Neonatal pathology. Morphological anomalies of newborns. Immunodeficiency. Method of determining Ig in the blood serum of newborns. Methodology for using colostrum meters.	**Independent work**	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 18	**Mastology.**	**LPL 41**	Fetal hypoxia. Hypotrophy, other diseases.		
Lecture 19	**Mammary gland pathology.**	**LPL 42-44**	Examination of the mammary gland during the dry period and during lactation.		
		LPL 45-46	Mammary gland pathology. Diagnosis.		
		LPL 47-48	Mammary gland pathology. Animal therapy.		
			Chapter 5. Veterinary gynecology and andrology		
Lecture 20	Veterinary gynecology.	**LPL 49**	Female infertility. Clinical research methods. Economic losses	**Independent work**	Computer monitoring of reproduction. Gynecological illness. Diagnosis, therapy, prevention. Ultrasonography, thermography, colpocytoscopy.
Lecture 21	Specific gynecological diseases of animals. Paths of	**LPL 50**	Gynecological medical examination.		

	intensification of created creatures.				Methodology. Impotence. Problems, breadth.
Lecture 22	Veterinary andrology.	**LPL 51** **LPL 52** **LPL 53-55** **LPL 56-57** **LPL 58-59** **LPL 60-61**	Infertility of females. Classification of infertility. Pathologies of the external genitalia Gonadopathies. Diagnosis and therapy of animals. Metropathies. Diagnosis and therapy of animals. Andrology. Diagnosis of impotence. Methods of complex therapy and prevention of andrological pathology.		Andrological medical examination. Methodology. Computer program for assessing the reproductive capacity of a male. Ultrasonographic, thermographic tracking. Post-cytography technique. Andrological drugs.
BASIC, ADDITIONAL LITERATURE AND METHODOLOGICAL MATERIALS					

Basic literature:

1. Noakes, D.E., Parkinson, T.J., England, G.C.W. Veterinary reproduction and obstetrics. 10th edition. Elsevier. 2019.
2. Veterynarne akusherstvo, hinekolohiia ta biotekhnolohiia vidtvorennia tvaryn z osnovamy androlohii : pidruchnyk / V.A. Yablonskyi, S.P. Khomyn, H.M. Kalynovskyi [ta in.]. – Vinnytsia: Nova Knyha, 2011. – 600 s.

Additional literature:

1. Akusherstvo, hinekolohiia ta shtuchne osimeninnia silskohospodarskykh tvaryn : navch. posib. / H.H. Kharuta, S.S. Volkov, I.M. Plakhotniuk [ta in.]. – Kyiv : Ahrarna osvita, 2013. – 445 s.
2. Berezovskyi A.V., Kharenko M.I., Khomyn S.P. [ta in.]. Fiziolohiia ta patolohiia rozmnozhennia dribnykh tvaryn : navch. posib. – Zhytomyr : V-vo Polissia, 2017. – 392 s.
3. 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.
4. Biotekhnolohichni metody u veterynarnii reproduktolohii : navch. posib. / V.V. Kovpak, O.A. Valchuk, S.S. Derkach [ta in.] ; NUBiP Ukrainy. – Kyiv : NUBiP Ukrainy, 2020. – 102 s.
5. Chenoweth, P. J., Lorton, S.P. Manual of animal andrology. CAB International. 2022.
6. England, G. C., Heimendahl, A. V. BSAVA manual of canine and feline reproduction and neonatology British Small Animal Veterinary Association. 2010.
7. 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.
8. Fiziolohiia ta patolohiia rozmnozhennia velykoi rohatoi khudoby: Navchalnyi posibnyk / H.M.Kalynovskyi, S.P.Khomyn, ta in. Kyiv. 2016. 478.
9. Hryshko D.S. Lektsii z veterynarnoho akusherstva: navchalnyi posibnyk. Kharkiv: Prapor, 2003. 400 s.
10. Iablonskyi V.A. Biotekhnolohiia vidtvorennia tvaryn / Yablonskyi V.A. – K.: Arystei, 2004. – 296 s.
11. Koshovyi V.P. Akushersko-hinekolohichna patolohiia u koriv: Navch. posib. dlia stud. vyshch. navch. zakladiv. – Kh.: Zoloti storinky, 2004. – 156 s.
12. Lopate, C. Management of pregnant and neonatal dogs, cats, and exotic pets. John Wiley Sons. 2012.
13. Mazurkevych A.I., Karpovskyi V.I. Fiziolohiia tvaryn: pidruchnyk. Vinnytsia: Nova Knyha, 2010. 424 s.
14. 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.
15. Pavliuk M.V. Tekhnolohiia vidtvorennia silskohospodarskykh tvaryn. – Kyiv: Ahrarna osvita, 2017. – 140 s.
16. 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.
17. 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.
18. Yablonskyi V.A. Biotekhnolohiia vidtvorennia tvaryn / Yablonskyi V.A. – K.: Arystei, 2004. – 296 s.

Methodical support

1. Dovidnyk po zastosuvanniu farmakolohichnykh zasobiv v akusherstvi, hinekolohii, androlohii ta biotekhnolohii vidtvorennia tvaryn / za red. M.I. Kharenka, A.V. Berezovskoho. – Kyiv : DIA, 2011. – 255 s.
2. Fedorenko S.Ia., Naumenko S.V., Skliarov P.M., Koshevoi V.I., Siehodin O.B. Metodychni rekomendatsii do laboratorno-praktychnykh zaniat z vyvchennia rozdilu «Veterynarna hinekolohiia». Kh., 2025. – 46 s.
3. 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.
4. Naumenko S.V., Fedorenko S.Ia., Koshevoi V.I., Pasternak A.M., Siehodin O.B. Metodychni rekomendatsii do laboratorno-praktychnykh zaniat z vyvchennia rozdilu «Veterynarna mastolohiia». Kh., 2024. – 41 s.
5. Naumenko S.V., Fedorenko S.Ia., Koshevoi V.I., Siehodin O.B., Pasternak A.M. Metodychni rekomendatsii do laboratorno-praktychnykh zaniat z vyvchennia rozdilu «Biotekhnolohiia rozmnozhennia tvaryn. Spermatolohiia». Kh., 2024. – 42 s.
6. Naumenko S.V., Fedorenko S.Ia., Koshevoi V.I., Siehodin O.B., Pasternak A.M. Metodychni rekomendatsii do laboratorno-praktychnykh zaniat z vyvchennia rozdilu «Veterynarna perynatolohiia». Kh., 2024. – 52 s.
7. Naumenko S.V., Fedorenko S.Ia., Koshevoi V.I., Skliarov P.M., Siehodin O.B. Metodychni rekomendatsii dlia vyvchennia rozdilu «Reproduktolohichna propedevtyka». Kh., 2025. – 48 s.
8. Naumenko S.V., Fedorenko S.Ia., Koshevoi V.I., Skliarov P.M., Siehodin O.B. Metodychni rekomendatsii dlia vyvchennia rozdilu «Reproduktyvna funktsiia u tvaryn. Strukturni, funktsionalni, klinichni paraleli, yikh prykladne znachennia u reproduktolohii». Kh., 2025. – 31 s.
9. Naumenko S.V., Fedorenko S.Ia., Siehodin O.B., Koshevoi V.I. Metodychni rekomendatsii dlia do vykonannia kursovoi roboty (istoriia khvoroby) z OK «Akusherstvo, hinekolohiia ta biotekhnolohiia vidtvorennia tvaryn». Kh., 2025. – 30 s.
10. Naumenko S.V., Koshevoi V.I., Skliarov P.M., Fedorenko S.Ia., Siehodin O.B. Metodychni rekomendatsii do laboratorno-praktychnykh zaniat z vyvchennia rozdilu «Veterynarna androlohiia». Kh., 2025. – 40 s.
11. 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.

EVALUATION SYSTEM

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

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.