

Ministry of Education and Science of Ukraine

Sumy National Agrarian University

Faculty of Veterinary Medicine

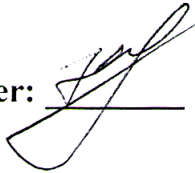
Department of Obstetrics and Surgery

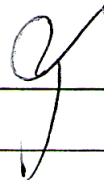
Work program (syllabus) of the educational component
(Mandatory)

***OK 22 Operative surgery,
topographic anatomy, anesthesiology***

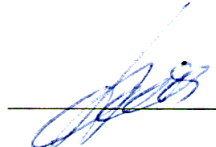
Specialty	211 Veterinary Medicine
Educational program	"Veterinary Medicine" (2024 intake)
Level of higher education	Second (Master's)

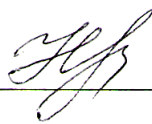
Sumy – 2026

Developer:  Yuriy MUSIENKO

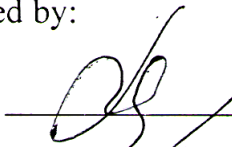
Reviewed, approved and ratified at a meeting of the Department of Obstetrics and Surgery	Minutes of 04.06.2026 No. 1 1
	Head of the Department  Oksana SHKROMADA

Agreed:

Guarantor of the educational program  Oleksandr CHEKAN

Dean of the faculty where the OP is implemented  Lyudmila NAGORNA

Review of the work program (attached) provided by:

 Oksana SHKROMADA
 Oleksandr CHEKAN

Methodologist of the Department of Educational Quality,

licensing and accreditation  Nadiya BARANIK

Registered in the electronic database: date: 26.06. 2026

1. GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

1.	Name OK	OK 22 Operative surgery, topographic anatomy, anesthesiology		
2.	Faculty of the department	veterinary medicine, obstetrics and surgery		
3.	Status OK	Mandatory		
4.	Program/Specialty (programs), part of which is the OK for (<i>filled in for mandatory OKs</i>)	211 "Veterinary Medicine"		
5.	NQF level	Level 7		
6.	Semester and duration of study	5 semester 1-15 week 6 semester 1-15 week		
7.	Number of credits ECTS	2 / 3		
8.	Total hours and their distribution	Contact work (classes)		
		Lectures	Practical /seminar	Independent work
		14 / 1 6	30 / 1 4	16 / 60
9.	Language of instruction	Ukrainian		
10.	Teacher/Educational Component Coordinator	Candidate of Veterinary Sciences, Associate Professor Musienko Yuriy Volodymyrovych		
11.	Contact information	y.musiienko@snau.edu.ua		
12.	General description of the educational component	The discipline "Operative Surgery, Topographic Anatomy, Anesthesiology" is a component of the educational process, in the system of higher veterinary education it is one of the most important fundamental disciplines that form a doctor of veterinary medicine. It reveals the issues of mastering the methods of surgical intervention in various emergency conditions of the animal's body, prepares students for mastering OP in clinical disciplines by studying the pathological processes of all body systems and the existence of the organism as a single whole. In the process of studying and mastering the material, the applicant for the second (master's) level of specialty 211 "Veterinary Medicine" forms a base of surgical knowledge and skills in the student and future doctor of veterinary medicine, contributes to the professional development of the student.		

13.	Purpose of the educational component	The purpose of the discipline "Operative Surgery, Topographic Anatomy, Anesthesiology" is to form a comprehensive system of knowledge and practical skills in a higher education applicant, and aims to enable students to acquire special competencies in the theoretical foundations, rules, methods and techniques of applying anesthetic support and performing surgical operations in animals. It is a component of the educational process that ensures the achievement of goals, competence and significant results in the learning process.
14.	Prerequisites for studying OK, connection with other educational components of OP	The educational component, being the basis for clinical subjects, is based on the theoretical knowledge obtained by the applicant in previous courses of study in such disciplines as "Anatomy with Latin veterinary terminology", "Cytology, histology, embryology", "Veterinary clinical biochemistry", "Animal physiology", "Pathological physiology", "Veterinary microbiology and immunology", "Clinical and laboratory diagnostics of animal diseases", "Veterinary pharmacology", which are studied in previous semesters and without the knowledge of which it is impossible to successfully master this subject.
15.	Academic Integrity Policy	Cheating during testing, assessment and exams is prohibited (including the use of mobile devices, computer gadgets, etc.). In case of violation of these requirements, a re-taking of the assessment (test, exam, assessment, etc.) is proposed. Attendance at classes is mandatory. For objective reasons (illness, international internship), training can take place individually (online in agreement with the dean of the faculty). Distance learning is possible using the messengers Telegram, Viber, Whatsapp - to create communication groups with students, the Zoom platform - to organize online classes, the university platform Moodle - for current and final control of the level of knowledge of students. In case of participation in any other activity related to violation of the rules and norms of academic integrity - re-study of the OK.
16.	Keywords	OK, surgery, topographic anatomy, anesthesiology
17.	Moodle link	https://cdn.snau.edu.ua/moodle/course/view.php?id=2929

2. LEARNING OUTCOMES BY EDUCATIONAL COMPONENT AND THEIR RELATIONSHIP WITH PROGRAM LEARNING OUTCOMES

Learning outcomes for OK: After studying the educational component, the student is expected to be able to...	Program learning outcomes that the OK aims to achieve			How is it rated?
	PRN 2.	PRN 4.	PRN 7.	
DRN 1. Know and possess the material for developing skills to competently use the terminology of operative surgery. Use information from domestic and foreign sources to develop diagnostic and therapeutic strategies for performing surgical interventions.	x			Oral survey in laboratory and practical classes, computer-based survey of students on the Moodle platform.
DRN 2. Collect anamnestic data during animal registration and examination. Analyze the results obtained and make decisions on choosing effective methods of conducting operations	x	x		Oral survey in laboratory and practical classes, computer-based survey of students on the Moodle platform.
DRN 3. Know the features of etiology, pathogenesis, symptoms, prognosis, as well as the principles of treatment and prevention of diseases Analyze the results obtained and formulate conclusions and make decisions regarding the effectiveness of selected methods of surgical intervention and prevention of infectious and non-infectious diseases.		x		Written survey on laboratory-practical classes (solving situational tasks), working with animals
DRN 4. Monitor the causes of the spread of surgical pathology diseases, environmental pollution with surgical waste, as well as materials and veterinary supplies.			x	Oral survey in laboratory and practical classes, computer-based survey of students on the Moodle platform
DRN 5. Know the rules for storing various pharmaceuticals and biological products, narcotics and the routes of their enteral or parenteral administration, understand the mechanism of their action, interaction and complex effect on the animal body.			x	Oral survey in laboratory practical classes, computer-based survey of students on the Moodle platform

PRN 2. Use information from domestic and foreign sources to develop diagnostic, treatment, and business strategies.

PRN 4. Collect anamnestic data during registration and examination of animals, make decisions on choosing effective methods of diagnosis, treatment and prevention of animal diseases.

PRN 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.

3. CONTENT OF THE EDUCATIONAL COMPONENT (COURSE PROGRAM)

Topic. List of issues to be addressed within the topic	Distribution within the overall time budget				Recommended literature
	Classroom work			The robot itself	
	Lecture	Pr	Lab		
5th semester:					
Topic 1. Introduction. The doctrine of surgical operation. Definition of the concepts of "veterinary surgery", "operative surgery". The role of the discipline in the formation of a doctor of veterinary medicine. History of development and founders of veterinary surgery. The doctrine of surgical operation.	2		2	2	1-5, 17, 18
Topic 2. Surgical instruments. Instruments for dissection of soft tissues, for stopping bleeding, for osteotomy and osteosynthesis, for connecting soft tissues, for castration of males, auxiliary, ophthalmic and orthopedic instruments.			2	2	1-4, 18
Topic 3. Fixation and use of pharmacological drugs to calm and immobilize animals. Fixation of individual body parts of different species of animals in a standing position, fixation of large animals in a lying position using a sling, pigs in a lying position. Practice of methods of fixing small ruminants in a lying position. Fixation machines. Fixation of carnivores, birds, fur-bearing and wild animals. Concept of the Trendelenburg position. Types of operating tables and methods of fixing different species of animals on them. Use of pharmacological agents for calming and immobilizing animals (general characteristics of neuroleptics, muscle relaxants, etc.) during operations and animal research.			2	2	1.3-7
Topic 4: Injections and infusions of liquid drugs. Study of instruments for injections and infusions. Study of indications and techniques for performing injections and infusions.			2	2	3-5
Topic 5. Prevention of surgical infection. Definition of the concepts of "microbial contamination of the wound", "surgical infection". Sources and routes of microbial contamination of surgical wounds. Development of the doctrine of antisepsis and asepsis. Prevention of surgical infection. Sterilization of instruments, syringes, injection needles, etc., sutures, dressings, and surgical linen. Methods for preparing hands and the surgical field for surgery.			2	2	1, 10-14

Topic 6. Bleeding, methods of prevention and its stopping. Blood clotting, spontaneous stopping of bleeding. Bleeding and its consequences for the body. Hemophilia in animals. Classification of bleeding. Prevention of bleeding. Use of medicinal plants for the prevention of bleeding. Temporary (temporary) stopping of bleeding. Final stopping of bleeding. Mechanical methods of stopping bleeding, physical methods of stopping bleeding, chemical methods of stopping bleeding, biological methods of stopping bleeding. Providing assistance to animals in case of blood loss.	2		2		4-6, 14-18
Topic 7. Blood transfusion (hemotransfusion). Indications for blood transfusion. Donor selection (determination of blood compatibility). Drip, direct and indirect blood transfusion. Providing assistance to animals in case of acute anemia. Indications and techniques for performing bloodletting and blood sampling.			2		4-6, 11-18
Topic 8. Anesthesia or general anesthesia . Definition of science "Anesthesia". The importance of anesthesia during operations on animals. Pain sensitivity of individual tissues and organs in different parts of the animal body. The effect of pain on the main functions of the body. Ways and methods of blocking pain impulses. Types of anesthesia. Types and classification of anesthesia. The course of anesthesia. Research on animals before anesthesia. Preparation of animals for anesthesia . Premedication and its purpose. Inhalation anesthesia. Non-inhalation anesthesia. <i>Anesthesia of certain animal species</i> . Complications during anesthesia in different animal species and resuscitation measures.	2		2		6, 8, 9, 11-16
Topic 9. Local anesthesia. Definition of concepts: local anesthesia, analgesia, anesthesia. Indications and contraindications to local anesthesia. Basic local anesthesia agents. Agents that enhance and prolong the action of local anesthetics. Durant anesthesia. Premedication during local anesthesia (potentiated local anesthesia). Preparation of the animal for local anesthesia and the technique of its implementation.			2		6, 8, 10, 16
Topic 10. Neuroleptanalgesia. Principle of the method. Indications and contraindications to neuroleptanalgesia. Use of neuroleptics in combination with narcotics.			2	2	6, 16
Topic 11. Tissue separation. The concept of rational incisions. Basic requirements for rational incisions. Soft tissue separation (rules and methods). Length, shape and direction of the incision. Tissue separation with ultrasound, electroknife, laser scalpel. Bone tissue separation. General concepts of osteotomy, trepanation, amputation, exarticulation and resection. Removal (extirpation) of benign and malignant tumors. Opening of abscesses.	2		2		14-16

Topic 12. Tissue connection. The importance of surgical suture for wound healing. Instruments and suture material used in surgical practice. Types of knots, apodactyl suture. Classification of sutures. Intermittent sutures. Continuous sutures. Special sutures. Tissue joining using synthetic adhesives. Tissue welding. Fundamentals of osteosynthesis.	2		2		4, 8, 10
Topic 13. Elements of plastic surgery, thermocauterization. Definition of the concept of "plastic surgery". Transplantation (free plastic) and plastic itself (involuntary plastic). Types of plastic surgery. The concept of biological compatibility of tissues in homo- and heteroplastic surgery; overcoming tissue incompatibility. Dermoplasty and skin transplantation. Methods of free and forced plastic surgery. Closure of defects using alloplastic materials. Cauterization (thermocauterization). General principles of thermocauterization. Cauterization technique.			2	2	1, 2, 3, 4, 6, 7, 10, 13, 14
Topic 14. Desmurgia. Definition of the concept of "desmurgia". Types of dressing material and their properties. Forms of application of dressing material. Types of bandages, purpose and rules of their application. Classification and characteristics of different types of bandages: by method of application, therapeutic effect, purpose and form of application of the dressing material. Technique of applying different types of bandages (general and special) and special non-bandage bandages. "Immobilizing bandages".	2		2	2	13-15
Topic 15. Novocaine blockades as a method of pathogenetic therapy. The difference between novocaine blockades and conduction anesthesia. Physiological justification for the use of novocaine blockades. Blockades used for diseases of the head and chest cavity. Blockades used for diseases of the chest, abdominal and pelvic cavities, udder. Other blockades used for surgical diseases. Contraindications to the use of novocaine therapy.	2		2		6, 9, 16
Total per semester	14		30	16	

6th semester				
Topic 16. Head surgeries. Features of surgical interventions in the head area. Operations in the nose and accessory sinuses of the nasal cavity. Operations on the horns. Anatomical topographic data of the eye area. Operations in case of eyelid torsion and eversion. Amputation of the third eyelid. Puncture of the orbital venous sinus in pigs. Enucleation of the eyeball. Technique for performing amputation of the auricle, cutting the wall of the external auditory canal, plastic correction of the posture of the auricle in dogs. Technique for performing puncture of the subarachnoid space. Operations on the teeth. Craniocerebral surgeries. Operations in the external ear area in dogs. Operations on the parotid duct, salivary glands. Operations on the air bladder. Operations in the occipital region.	4	4	10	1, 2, 3, 4, 6, 7, 10, 13, 14
Topic 17. Operations on the ventral parts of the neck, withers and chest wall. Anatomical topographic data of the ventral part of the neck. Intratracheal injections. Laryngotomy. Tracheotomy. Intracarotid injections Ligation of the carotid artery. Operations in case of esophageal diverticulum. Resection of the jugular vein. Puncture and dissection of the goiter (ingluviotomy) in birds. Anatomical topographic data of the withers. Puncture and dissection of the deep bursa of the withers. Operations in case of damage to the occipital spinous ligament. Resection of the spinous processes. Resection of the cartilage of the scapula. Connective tissue spaces of the withers. Rational surgical approaches. Anatomical topographic data of the lateral chest wall. Conductive anesthesia of the nerves of the lateral chest wall. Pleurocentesis. Subcostal rib resection. Principles of thoracotomy. Puncture of the anterior vena cava in pigs	2	2	10	2, 4, 18
Topic 18. Operations on the abdomen and abdominal organs. Anatomical topographic data of the abdominal wall. Conductive anesthesia of the nerves of the abdominal wall. Topographic anatomy of the abdominal organs and features of their innervation. Laparotomy: diagnostic and therapeutic. Methods of laparotomy of the ventral and lateral abdominal wall. Laparocentesis. Puncture of the scar, the book, the abomasum. Ruminotomy. Abomasotomy. Operation in case of left- and right-sided displacement of the abomasum in cattle. Puncture of the cecum and colon in a horse. Puncture of the abdominal aorta (aortopuncture).	2	2	10	2, 4, 18
lenectomy in dogs. Liver biopsy in cattle. Enterotomy and intestinal resection in small and large animals. Gastric puncture, gastrostomy, pylorotomy, liver resection, gallbladder dissection, cholecystectomy, kidney biopsy and dissection, nephrectomy, surgical treatment of intestinal intussusception in dogs and cats.				
Topic 19 . Surgical treatment for displacement of internal organs. Types of displacement of internal organs. Definition, structure and classification of hernias. Operations in case of umbilical hernias and hernias of the lateral abdominal wall: resectable, unresectable, incarcerated. Operations in case of intravaginal, intraabdominal and perineal hernias. Use of alloplastic materials for closing hernial hiatus. Operations in case of prolapses and eventrations.	2	2	10	18

Topic 20. Operations on the preputial sac, penis, perineum and pelvic cavity organs. Preparation of male test subjects. Anatomical topographic data. Conductive anesthesia of the male penis. Resection of persistent frenulum of the penis in a bull. Resection of the preputial sac in case of its prolapse in a bull. Extirpation of neoplasms on the penis in a bull. Operation in case of rupture of the albumen membrane (hematoma or "fracture") of the penis in a bull. Amputation of the penis in a horse. Resection of the "cuff" in case of paraphimosis in a horse. Indications for preparation of male test subjects, fixation and anesthesia. Methods of preparation of male test subjects. Technique of surgery in different species of male farm animals. Operations on the mammary gland. Cesarean section. Amputation of the uterus in bitches and cats. Operations in the perineum. Anatomical topographic data. Conductive anesthesia of the perineum. Dissection of the urogenital canal (urethrotomy). Formation of an artificial fistula of the urogenital canal (urethrostomy). Operations on the bladder. Anatomical topographic data. Puncture and dissection of the bladder (cystotomy) in large and small animals. Operations in the anus and rectum. Anatomical topographic data of the pelvis and pelvic organs. Resection of the rectum. Operations in case of anomalies of the development of the anus and rectum.	2	2	10	18
Topic 21. Castration of males and females. Castration of males. Purpose of castration. Indications and contraindications to castration. Anatomical topographic data. Optimal age of animals for castration. Research and preparation of animals for castration. Fixation, anesthesia. Organization of mass castration in farm conditions. Characteristics of surgical methods of castration: bloody (open and closed methods) and bloodless (percutaneous). Technique of castration of different species of males. Features of castration of cryptorchids. Post-castration complications (early and late), prevention and elimination. Castration of females. Purpose of castration. Indications and contraindications to castration of females. Castration of gilts.	4	2	10	2, 3, 8-12, 18
Total per semester	16	14	60	
Total for the year	30	44	76	

4. TEACHING AND LEARNING METHODS

DRN	Teaching methods (work that will be carried out by the teacher <u>during classroom lessons</u> , consultations)	Teaching methods (what types of learning activities should <u>the student perform independently</u> .)
DRN 1.	- presentation of lecture material according to plan; - literature suggestions for each lecture topic; - use of the Moodle and Zoom platforms during the class.	- recording (reading) lecture material, - mastering research methods, - independent work during research
DRN 2.	- discussion of lecture material; - mandatory preparation for the LPZ. - thematic survey on laboratory work topics. - consulting students in the process of mastering the OK according to the consulting schedule.	- recording (reading) lecture material, - mastering research methods,
DRN 3.	- presentation of the material that will be considered within the topic according to the plan; - assimilation (processing) of lecture material for conducting the LPP. - discussion of the material of the new topic;	- recording (reading) lecture material. - independent work during research

	- use of the Moodle and Zoom platforms during the class.	
DRN 4 .	- explanation of new LPZ material on dummies, dry and wet anatomical preparations. - use of the Moodle and Zoom platforms during classes, - literature suggestions for each lecture topic.	- solving situational problems, - mastering research methods, - testing on topics of independent work using the Moodle platform
DRN 5 .	- methodical design of all types of students' work; - mandatory preparation for the LPZ. - assimilation (processing) of lecture material for conducting the LPP. - consulting students in the process of mastering the OK according to the consulting schedule.	- Solving situational problems. - testing on topics of independent work using the Moodle platform - mastering research methods,

5. EVALUATION BY EDUCATIONAL COMPONENT

5.1. Diagnostic assessment (indicated as necessary)

5.2. Summative assessment

5.1.1. For the assessment of expected learning outcomes, the following is provided:

No.	Summative assessment methods	Points / Weight in the overall score	Date of compilation
1.	Theoretical knowledge section (multiple choice test 40 points)	50 points / 50%	8.14 weeks
2.	Solving practical and situational tasks on course topics	20 points / 20%	5.10 week
3.	Together	70 points / 70%	Week 15
4.	Exam (written, 2 theoretical questions, 1 situational task)	30 points / 30%	according to the session schedule
5.	Total	100 points /100%	

5.1.2. Evaluation criteria

Component	Unsatisfactorily	Satisfactorily	Good	Perfectly
	<i>< 19 points</i>	<i>20-29 points</i>	<i>30-39 points</i>	<i>40-50 points</i>
Theoretical knowledge section (multiple choice test)	Does not fully master the educational material. Presents it fragmentarily and superficially (without argumentation and justification) during written answers, does not sufficiently reveal the content of theoretical questions, while allowing significant inaccuracies, correctly solved a minority of test tasks	In general, he/she has mastered the educational material, presents its main content during written answers, but without deep comprehensive analysis, justification and argumentation, without using the necessary literature, while allowing some significant inaccuracies and errors. He/she solved half of the test tasks correctly	Sufficiently mastered the educational material, presented it in a well-reasoned manner during written answers, mainly revealed the content of theoretical questions. However, when presenting some questions, there is a lack of sufficient depth and reasoning, and some minor inaccuracies and minor errors are allowed. Correctly solved most of the test tasks	Fully mastered the educational material, freely and independently presents it in a reasoned manner during written answers, deeply and comprehensively reveals the content of theoretical questions and practical tasks, using mandatory and additional literature. Correctly solved all test tasks.

Solving practical and situational tasks on course topics	<i><12 points</i>	<i>12-15 points</i>	<i>15-18 points</i>	<i>18-20 points</i>
	The tasks are completed partially and poorly; only formulas are written down.	The tasks are completed, but contain gross errors; the tasks are not completed in full and significant errors are made; conclusions based on the results of the calculations are not formulated	The tasks were completed in full, but minor errors were made during the execution; the material presented was not substantiated; the conclusions contain errors and inaccuracies	The tasks are completed completely and correctly, contain explanations for the calculations; the ability to independently formulate conclusions based on the results of the research is demonstrated; a creative approach is present
Exam (written, 2 theoretical questions, 1 practical task)	<i>< 18 points</i>	<i>18-23</i>	<i>23-27 points</i>	<i>27-30 points</i>
	The student did not answer the question at all, or his answer is incorrect, The argumentation is absent altogether or is completely unsystematic or illogical. The problem is solved incorrectly. The answer to the situational problem is unfounded and illogical.	The student answered the question posed, but made significant errors both in content and in the format of the answer to the question; the work contains many gross spelling errors; the algorithm for solving the problem is broken and/or there are errors in calculations, there are no conclusions; the justification for the answer to the situational task is poorly argued	The student gave a fairly meaningful answer to the question posed, but the answer is incomplete, there are minor inaccuracies or gaps in explaining one or another aspect of the question; the answer to the situational task is not sufficiently reasoned; the algorithm for solving the problem is correct, but errors were made in the calculations	The student's answer contains a complete, detailed, correct presentation of the material on the question posed; demonstrates knowledge of the basic concepts and categories and the relationship between them, a correct understanding of the content of the main theoretical provisions; indicates the ability to provide a meaningful and logical analysis of the material on the question posed; contains a consistent and reasoned solution to the problem (task); correctly made calculations for the problem

5.3. Formative assessment:

To assess current progress in learning and understand areas for further improvement,

No.	Elements of formative assessment	Date
1	Theoretical written survey (questions/tests)	3,8,14 weeks
2	Solving practical and situational problems	At every lesson
3	Discussion of independently completed homework assignments by students	At every lesson
4	Teacher's instructions in the process of conducting scientific research	2,4,6,10 weeks
5	Review and discussion of scientific research	3,8,13 weeks

6. LEARNING RESOURCES (LITERATURE)

6.3. Main sources

6.3.1. Textbooks and manuals

1. Sukhonos V.P., Malyuk M.O., Kulida M.A. and others. Operative surgery. Part I: textbook. – Kyiv: NUBiP of Ukraine, 2021. – 492 p .
2. Sukhonos V.P., Malyuk M.O., Kulida M.A. and others. Operative surgery with the basics of topographic anatomy, anesthesiology. Part II: textbook. – Kyiv: NUBiP of Ukraine, 2022. – 370 p .
3. Chekan O.M., Grebenyk N.P., Musienko Y.V. Physiology and pathology of sheep and goats. Textbook. Sumy, SNAU, 2025. 188 p.
4. Shkromada O.I., Chekan O.M., Fotina T.I. Grebenyk N.P. Musienko Y.V., Stotsky O.G., Lazorenko A.B., Plyuta.L.V. Gynecological propaedeutics of female farm animals. Textbook» Sumy, SNAU, 2024. 185 p.
5. Fossum TW Small Animal Surgery. 6th ed. Elsevier, 2024. 1664 p.
6. Tobias KM, Johnston SA Veterinary Surgery: Small Animal. 3rd ed. Elsevier, 2024. 2800 p.
7. Grimm KA, Lamont LA, Tranquilli WJ, Greene SA, Robertson SA Veterinary Anesthesia and Analgesia. 6th ed. Wiley-Blackwell, 2025. 1100 p.
8. Auer JA, Stick JA, Kümmerle JM, Prange T. Equine Surgery. 6th ed. Elsevier, 2024. 1800 p .

6.3.2. Methodological support

9. Methodological recommendations for independent work of applicants in the discipline "Operative surgery, topographic anatomy and anesthesiology". Sumy: SNAU, 2025. 80 p.
10. Practical course in operative surgery and anesthesiology for students of the Faculty of Veterinary Medicine. Sumy: SNAU, 2024. 50 p.

6.3.3. Other sources

11. Electronic resource <http://library.sau.sumy.ua>
12. Electronic resource: Veterinary Surgery Journal
13. Electronic resource: American College of Veterinary Surgeons (ACVS)
14. Electronic resource: Veterinary Anaesthesia and Analgesia Journal
15. Electronic resource: World Small Animal Veterinary Association (WSAVA) Guidelines

6.3.4. Additional sources

16. Bondarenko, I., Lazorenko, A., Musiienko, Yu., & Panasenko, O. (2023). Inflammatory and anti-inflammatory cytokines in the endometrium of cows during anaphrodisia and estrous cycle. Scientific Horizons, 26(9), 35-43. <https://doi.org/10.48077/scihor9.2023.35> (Scopus)
17. Chekan, O., Rokochyi, A., Kysterna, O., Musiienko, Yu., & Levchenko, I. (2024). Use of contraceptives in cats with ovarian and uterine pathology. Scientific Horizons, 27(2), 9-18. <https://doi.org/10.48077/scihor2.2024.09> (Scopus)

6.3.5. Software

18. Moodle distance learning and monitoring system
<https://cdn.snau.edu.ua/moodle/course/view.php?id=2929>