

Ministry of Education and Science of Ukraine
Sumy National Agrarian University
Faculty of Veterinary Medicine
Department of Internal Medicine, Pharmacy and Biochemistry

Work program (syllabus) of the educational component
" Information technologies in veterinary medicine "
(Mandatory)

Specialty	Veterinary medicine
Educational program	Veterinary medicine
Level of higher education	Second (Master's)

Author:  (Kalashnyk O.M., Phd, Associate professor of department of Internal Medicine, Pharmacy and Biochemistry)

Module syllabus agreed at the _____ Department meeting	Minutes No <u>17</u> dated <u>09.06.2025</u>
	Head of the Department of Internal Medicine, Pharmacy and Biochemistry <u></u> (Nechiporenko O.L.)

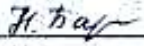
Approved by:

Guarantor of the educational program 
(signature) (full name)

Dean of the faculty where the educational program is implemented  Nagorna L.V.
(signature) (full name)

A review of the work program (attached) was provided by:

  Doctor of Veterinary Sciences, Professor Shkromada O.I.
PhD, Associate Professor Plyuta L.V.

Methodologist of the Education Quality Department,
licensing and accreditation  N. Baranik
(signature) (full name)

Registered in the electronic database: date: 01.07. 2025 .

Information on reviewing the work program (syllabus):

[illegible]

1. GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

1.	Name OK	Information technologies in veterinary medicine		
2.	Faculty/department	Faculty of Veterinary Medicine, Department of Anatomy, Normal and Pathological Physiology		
3.	Status OK	Mandatory		
4.	Program/Specialty (programs), part of which is the OK for (<i>filled in for mandatory OKs</i>)	Veterinary medicine		
5.	The OK can be offered for (<i>filled in for selective OKs</i>)	EP "Veterinary Hygiene, Sanitation and Expertise"		
6.	Semester and duration of study	X semester 1-18 weeks		
7.	Number of ECTS credits	X semester: 5 credits total . course : 150 hours, aud. 2, incl . . 0 hours. lectures, 2 hours. labs ., self. work 148 hours, credit		
8.	Total hours and their distribution	Contact work (classes)		
		Lectures 0	Practical/seminar 2	Laboratory 148
9.	Language of instruction	English language		
10.	Teacher/Educational Component Coordinator	Kalashnik Oleksandr Mykolayovych		
11.1	Contact information	kalashnikan @ukr.net		
11.	General description of the educational component	OP on "Information Technologies in Veterinary Medicine" as an integral component in the areas of training, retraining and advanced training of veterinary specialists, practicing veterinary doctors, taking into account the goals of the university and the requests of employers in the labor market, regarding training, scientific research and deepening of knowledge of students, scientists and teachers, specialists of the Competent Authority of the country (State Service for the Supervision of Food and Consumer Protection of Ukraine, its territorial bodies, as well as enterprises, institutions and organizations belonging to the sphere of its management), departmental and practicing veterinarians in the fields of animal husbandry and trade, etc., as well as the mission of creating, systematizing, storing and disseminating modern scientific knowledge to improve the quality of life of people, training specialists of European and world level, intellectual and personal development of citizens.		
12.	Purpose of the educational component	The purpose of the educational component of the OK on "Information Technologies in Veterinary Medicine" is to study modern programs for accounting for animal productivity, planning preventive veterinary measures and animal treatment, a set of methods, production and software and technological tools combined into a technological chain that ensures the creation, collection, storage, processing, reproduction and access to data, with the possibility of their analysis and evaluation by computer technology, as well as the principles of their functioning and data management methods, to reduce the labor intensity of the processes of using information resources regarding the state of animal health, their movement, the zoosanitary condition of controlled objects, risk assessment of phenomena, events and processes, in the areas of animal control, food products, feed, by-products of animal origin, veterinary medicine and animal welfare, international, national and local veterinary legislation, etc.		
13.	Prerequisites for studying OK, connection with other educational components of OP	1. The educational component is based on the studied OK in genetics, physiology, animal breeding and feeding, pharmacology, surgery 2. The educational component is the basis for the study of therapy, obstetrics, gynecology		
14.	Academic Integrity Policy	Study the OC with academic integrity, plagiarism is prohibited. In case of violation of these requirements, re-study of the OC is recommended.		
15.	Keywords	Uniform Agri, E - note		

1.2 INFORMATION ABOUT THE TEACHER(S) .

1. Kalashnyk Oleksandr Mykolayovych – Candidate of Veterinary Sciences, Associate Professor of the Department of Anatomy, Normal and Pathological Physiology of Sumy National University

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 OC aims to achieve (indicate the number according to the numbering given in the OP) ¹				How is RND assessed?
	PRN ₁	PRN ₃	PRN ₄	PRN ₁₅	
DRN 1.					
Competently use the features of veterinary data and their classification; modern data processing tools using computer technology; the state and prospects for the development of information technologies in the field of veterinary medicine; the purpose and main characteristics of technical devices built on the basis of modern computer technologies to meet the information needs of the industry; the range and features of specialized software used to solve the professional needs of personnel	X				1. Survey in laboratory and practical classes, calling out tasks
DRN 2.					
Know the theoretical foundations of information technologies; modern animal productivity accounting programs and use them in modern veterinary practice of animal husbandry; programs for the control and use of veterinary drugs and biologically active substances.		X			1. Survey in laboratory and practical classes, calling out tasks
DRN 3.					
Install modern information technology programs to automate data processing and organize information exchange; populate the database to address the veterinary needs of farms.				X	1. Survey in laboratory and practical classes, calling out tasks
DRN 4.					
Analyze the state of farms and be able to apply knowledge during practical activities.			X		1. Survey in laboratory and practical classes, calling out tasks
DRN 5.					
Use modern information technologies to automate data processing and organize information exchange; practical application of computer technologies to address the information needs of the industry.	X				1. Surveys in laboratory and practical classes, notebook design 2. Computer-based survey and analysis of students' knowledge (certification) 3. Multiple choice test (test)

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 reading ²
	Classroom work		Independent work		
	Luke	P.z / semin . z	Lab . with.		
10th semester: (hours)					
Topic 1. Modern information technologies in veterinary medicine		2		80	1, 2, 3, 4, 17,
1. Introduction. Introduction to information technology. Information technologies in veterinary medicine. Modern programs .		2		20	
2. Introducing students to modern herd management programs				20	
3. Introducing students to the Uniform program Agri .				40	
Topic 2. Use of modern programs in veterinary medicine .				68	1, 2, 3, 4, 6, 7, 10, 13, 14,
1. Method of entering personal information on cattle with the program Uniform Agri .				18	
2. Method of entering personal information on cattle with the program. Method of entering personal information on breeding bulls with the Uniform program Agri .				10	
3. Analysis of the obtained data with the Uniform program Agri .				10	
4. Planning veterinary preventive measures				20	
5. Familiarizing students with modern management programs for private veterinary clinics for the treatment of small animals . Data entry . Using programs in working with clients.				10	
Total		2		148	

4. TEACHING AND LEARNING METHODS

DRN	Teaching methods (work	Number of	Teaching methods	Number of
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	that will be carried out by the teacher <u>during classroom lessons</u> , consultations)	hours	(what types of learning activities should the <u>student perform independently</u>)	hours
- Know the rules of keeping and feeding animals at different stages of their development. - Be able to practically apply the knowledge gained. - Know the effectiveness and importance of information programs on dairy farm management. - Be able to use programs for managing a productive herd. - Know the qualitative differences in physiological and productive functions in animals found in different environmental conditions. - Be able to use the knowledge gained to identify theoretical and practical tasks in production - Be able to identify disease, respond to reports of disease cases, and respond to outbreaks. - Be able to apply mathematical biomodeling of events, processes, and phenomena, which provides the veterinary specialist with an understanding of the fundamental principles of mathematics in biology and applied aspects of bioinformatics , including biostatistics , development of research protocols and tools for collecting epidemiological data, analysis of indicators using special software for processing primary and experimental statistical data, evaluation of monitoring indicator results, components of risk analysis, study of outbreaks of transmissible diseases, the basics of making informed management decisions, and skills for critically evaluating publications in the media.	In the process of providing material on Information Technologies in Veterinary Medicine, the following work will be carried out at lectures: - presentation of lecture material according to plan; - discussion of lecture material; - literature suggestions for each lecture topic; - use of Moodle , Zoom during the lecture - consulting students in the process of mastering the OK on information technologies in veterinary medicine - methodological design of all types of students' work; - control of the educational process individually by each student (modules, tests, exams)	16 44	During lectures and lab sessions, the student must independently perform: - - mastering information entry techniques; - independent work during practical work - recording research results; - analysis of research results; - drawing conclusions from the data obtained; - recording lecture material - mandatory preparation for the LPP, mastering lecture material for conducting the LPP.	40 50

5. EVALUATION BY EDUCATIONAL COMPONENT

5.1.Diagnostic assessment (indicated as needed)

5.2.Summative assessment

5.2.1. To assess the expected learning outcomes, there are

No.	Summative assessment methods	Points / Weight in the overall score	Date of compilation
Spring semester			
1.	Surveys in laboratory and practical classes, notebook design	55/55%	3, 8, 12,15 weeks
2.	Drawing up the conclusions of the practical task.	15/15%	Week 15

3.	Computer-based survey and analysis of student knowledge (certification)	15/15%	Week 17
4.	Multiple choice test (test)	15/15%	Week 18

5.3.Evaluation criteria

Spring semester

Component³	Unsatisfactorily	Satisfactorily	Good	Perfectly⁴
Surveys in laboratory and practical classes, notebook design	< 37 points	38-44 points	45-54 points	55 points
	The notebooks for laboratory and practical classes are not completed, there are no conclusions and their analysis.	The notebook of laboratory and practical classes is completed, there are no conclusions and their analysis	The notebook of laboratory and practical classes is completed, there are conclusions, but their analysis is missing.	The notebook of laboratory and practical classes is perfectly designed, there are conclusions and their analysis, the student understands the problems to be solved, is able to develop and evaluate possible solutions to this problem
Abstract preparation	< 8 points	9-11 points	12-14 points	15 points
	Task not completed	The abstract is written without understanding the relationship between the tasks set to be solved, unable to critically evaluate information from literary sources	The abstract contains a good level of analysis, synthesis, generalization and critical evaluation of data from literary sources cited in the abstract, capable of critically evaluating information from literary sources	The abstract is impeccably designed, the material is logically arranged with an understanding of the interrelationships of the processes revealed on this topic, and demonstrates a highly developed ability to critically review academic literature and other sources of information.
Computer-based survey and analysis of student knowledge (certification)	< 7 points	8-9 points	10-14 points	15 points
	Task not completed	The computer survey was conducted without understanding the relationship between the tasks set, unable to critically evaluate information from literature sources	Computer survey performed at a good level, analysis, synthesis, generalization and critical evaluation of data from literary sources, able to critically evaluate information from literary sources	The computer survey was performed flawlessly, the material is logically arranged with an understanding of the interrelationships of the processes revealed on this topic, demonstrating

				a highly developed ability to critically evaluate academic literature and other sources of information.
Multiple choice test (test)	< 7 points	8-12 points	13-14 points	15 points
	Task not completed	Task 50% complete	Task 75% complete	Task 100% completed

5.4. Formative assessment:

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

No.	Elements of formative assessment	Date
1	Surveys in laboratory and practical classes, notebook design	According to the class schedule
2	Abstract preparation	Within a week before the end of the educational process
3	Computer-based survey and analysis of student knowledge (certification)	Last week of classes
4	Test – multiple choice test	According to the exam schedule

6. LEARNING RESOURCES (LITERATURE)

6.3. Main sources

6.3.1 Textbooks and manuals

1. Medical informatics in modules: practical course / I.E. Bulakh , L.P. Voitenko , M.R. Mruga and others; ed. I.E. Bulakh . –K.: Medicine, 2012. –208 p.
2. Computer modeling in pharmacy: Textbook for medical universities IV year of study . Recommended by the Ministry of Health / Bulakh I.E. and others. - K., 2016. - 208 p. F A 1.1-26-295 SUYA NPhU Edition 02 Date of introduction 04/27/2020 Page . 11 of 11
3. Bulakh I.E., Lyakh Yu.E., Martsenyuk V.P., Khaimzon I.I.. Medical Informatics. Textbook for 2nd year students of medical specialties. Ternopil, TSMU, “ Ukrmedknyga ” 2008.-316p.
4. Information technologies in pharmacy: a textbook. / I.E. Bulakh, L.P. Voitenko, L.O. Kukhar , M.R. Mruga , I.M. Shylo ; Edited by Bulakh I.E. – Kyiv: Medicine, 2008. – 224 p.

6.3.2 Methodological support

5. Methodological guidelines methodological guidelines for laboratory and practical classes and diploma theses for studying the course "Information Technologies in Veterinary Medicine" and tasks for self-control " Information Technologies in Veterinary Medicine - Uniform Agri ” for masters in the specialty “Veterinary Medicine” of full-time study. Ch I.- [O. M. Kalashnyk.]. – Sumy , 2025 – 73 p.
6. Methodological instructions for laboratory and practical classes and diploma theses for studying the course "Information Technologies in Veterinary Medicine" and tasks for self-control " Information **Technologies** in Veterinary Medicine - Uniform Agri ” for masters in the specialty “Veterinary Medicine” of full-time study. Part II.- [O. M. Kalashnyk.]. – Sumy , 2025 – 63 p.

6.3.3 Other sources

7. <http://lib.nuph.edu.ua/>
8. Electronic archive of the National University of Physics and Technology : <http://dspace.nuph.edu.ua/handle/123456789/9176>
9. www.imia.org (International Medical Informatics Association)
10. www.mihandbook.stanford.edu (Medical Informatics, Stanford University)
11. www.uacm.kharkov.ua (Ukrainian Association “Computer Medicine”)
12. www.mednavigator.net (Medical search engine)
13. www.rmj.ru (Internet versions of periodicals)
14. www.medinfo.com.ua (Medical search engine of Ukraine)
15. www.medico.ru (Medical search engine)
16. www.nmuinform.ucoz.ru (Information resources of educational and methodological materials on the discipline
17. "Medical Informatics")
18. <http://www.openoffice.org/> (Official OpenOffice.org website)
19. www.cebm.net (Cochrane Centre for Evidence-Based Medicine)
20. www.cochrane.org (Cochrane Library)
21. www.ncbi.nlm.nih.gov/PubMed (US National Library of Medicine - MEDLINE).
22. www.medinf.nmu.ua (Information resources of educational and methodological materials on the discipline "European Standard of Computer Literacy")

6. 4 Additional sources

23. Medical informatics: textbook/I.E. Bulakh, Yu.E. Lyakh, V.P. Martsenyuk , I.I. Khaimzon . – K.: VSI “Medicine”, 2012. – 424 p.
24. Handbook of Medical Informatics . Editors : JH van Bommel , MA Musen . – <http://www.mieur.nl/mihandbook;> <http://www.mihandbook.stanford.edu> .
25. Medical Informatics =Medical informatics: textbook / I.E. Bulakh, Yu.E. Lyakh, V.P. Martsenyuk , I.Y. Khaimzon . – K.: VSI “Medicine”, 2012. – 368 p.
26. Information technologies in psychology and medicine: textbook / I.E. Bulakh, I.I. Khaimzon . – Kyiv: VSV “Medicine”, 2011. – 216 p.
27. Informatics and information technologies: a practical course for organizing students' work in practical and laboratory classes / Yu. Yu. Bilak, V. O. Laver , Yu. V. Andrashko , I. M. Lyakh; Ministry of Education and Science of Ukraine, State Higher Educational Institution " Uzhhorod National University",
28. Handbook of Medical Informatics . Editors : JH van Bommel , MA Musen . – <http://www.mieur.nl/mihandbook;> <http://www.mihandbook.stanford.edu> .
29. Medical Informatics =Medical informatics: textbook / I.E. Bulakh, Yu.E. Lyakh, V.P. Martsenyuk , I.Y. Khaimzon . – K.: VSI “Medicine”, 2012. – 368 p.
30. Information technologies in psychology and medicine: textbook / I.E. Bulakh, I.I. Khaimzon . – Kyiv: VSV “Medicine”, 2011. – 216 p.
31. Informatics and information technologies: a practical course for organizing students' work in practical and laboratory classes / Yu. Yu. Bilak, V. O. Laver , Yu. V. Andrashko , I. M. Lyakh; Ministry of Education and Science of Ukraine, State Higher Educational Institution " Uzhgorod National University ", Faculty of Information Technologies, Department of Informatics and Physics and Mathematics - Uzhgorod: Outdoor -Shark, 2015.
32. Informatics: practical course on information technologies / Ya. M. Hlynsky. —Ternopil: Textbook and manual , 2014. — 302 p. **Veterinary medicine**