Federal State Autonomous Educational Institution for Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA

Agrarian and Technological Institute

WORKING COURSE SYLLABUS

Computer science

Recommended by the Methodological Council for the Education Field:

36.05.01 Veterinary medicine

2022 г.

1. GOALS AND OBJECTIVES OF THE DISCIPLINE

The aim of mastering the discipline "**Computer science**" is the formation and development of competencies aimed at using modern computer technologies, familiarizing students with the basics of modern information technologies, their development trends, teaching students the principles of building information models, analyzing the results obtained, using modern information technologies.

2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The development of the discipline "**Computer science**" is aimed at creating the following competencies (parts of competencies) for students:

Table 2.1. List of competencies formed by students during the development of the discipline (results of the development of the discipline)

Code	Competence	**Indicators of competence accomplishment** (within the discipline)
UK -12	The ability to search for the necessary sources of information and data, to perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; to evaluate information, its reliability, build logical conclusions based on incoming information and data	UK -12.1 Searches for the necessary sources of information and data, perceives, analyzes, remembers and transmits information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems
		UK-12.2 Evaluates information, its reliability, builds logical conclusions based on incoming information and data
GPC -4	The ability to use methods of solving problems using modern equipment in the development of new technologies in professional activity and to use modern professional methodology for conducting experimental research and interpreting their results.	GPC-4.1 Possesses the conceptual and methodological apparatus of basic natural sciences at a level sufficient for full-fledged professional activity at the modern level.
		GPC-4.2 He knows the methods of solving problems using modern equipment.
		GPC-4.3 He is ready to use modern methodology in the development and conduct of experimental research.
		GPC-4.4 Uses modern professional methodology in interpreting research results.
GPC -5	The ability to draw up special documentation, analyze the	GPC-5.1 Has the skills to search for the necessary forms of documentation on

	results of professional activity and submit accounting documents using specialized databases.	official websites and in specialized databases.
		GPC-5.2 Possesses professional terminology and skills in filling out analytical and reporting documents of a professional orientation.
		GPC-5.3 He is able to use specialized software to analyze the results of professional activity and compile accounting documentation.
GPC -7	He is able to understand the principles of modern information technologies and use them to solve the tasks of professional activity.	GPC-7.1 Understands the principles of modern computer technology and telecommunications and is able to use them to solve professional problems;
		GPC-7.2 Uses modern special software and specialized databases to solve professional tasks and perform official duties;
		GPC-7.3 Has the skills to work on modern medical diagnostic and therapeutic equipment with software;
		GPC-7.4 Uses specialized databases to solve professional problems in the field of diagnostics and treatment of animals of various species;
		GPC-7.5 Uses geoinformation systems and software complexes when collecting and analyzing information related to the assessment of the spread of infectious diseases, epizootic situations, planning and evaluating the effectiveness of anti-epizootic measures.

3. COURSE IN HIGHER EDUCATION

The discipline "**Computer science**" refers to the mandatory part of block B1 of the Educational Program of Higher Education.

As part of the Educational Program of Higher Education, students also master other disciplines and /or practices that contribute to achieving the planned results of mastering the discipline "**Computer science**".

Table 3.1. List of Higher Education Program components disciplines that contribute to expected learning outcomes

Competence code	Competence	Previous Disciplines (Modules)	Subsequent Disciplines (Modules)

UK -12	The ability to search for the necessary sources of information and data, to perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; to evaluate information, its reliability, build logical conclusions based on incoming information and data	Law science	Philosophy Life safety Instrumental diagnostic methods Organization of veterinary affairs Forensic veterinary examination and dissection of animals Maths Veterinary deontology Medicinal and poisonous plants The basics of intellectual work Personality psychology and professional self-determination Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Organization of state veterinary supervision Veterinary and industrial laboratories with design basics Biometrics in veterinary medicine Basics of social and legal knowledge Space technologies at the service of the agro-industrial complex
GPC -4	The ability to use methods of solving problems using modern equipment in the development of new technologies in professional activity and to use modern professional methodology for	Inorganic and analytical chemistry Organic chemistry Biological physics	Physical and Colloidal Chemistry Cytology, Histology and Embryology Biological chemistry Veterinary Microbiology and Mycology Virology and biotechnology

	conducting experimental research and interpreting their results.		Physiology and ethology of animals Breeding with the basics of private animal husbandry Pathological physiology Veterinary radiobiology Clinical diagnostics Pathological anatomy Operative surgery with topographic anatomy Instrumental diagnostic methods Toxicology Obstetrics, gynecology and andrology Internal diseases General surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases Maths Immunology Veterinary sanitation Processing technology for livestock products Medicinal and poisonous plants Fodder plants The basics of intellectual work Personality psychology and professional self-determination Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases

			Horse diseases Diseases of Productive Animals Diseases of small pets Болезни мелких домашних животных Diseases of bees and entomophages Fish pathology and aquaculture Diseases of exotic animals Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology Nephrology Reconstructive surgery Veterinary ophthalmology Animal Dentistry
GPC -5	The ability to draw up special documentation, analyze the results of professional activity and submit accounting documents using specialized databases.	Veterinary genetics	Breeding with the basics of private animal husbandry Clinical diagnostics Pathological anatomy Operative surgery with topographic anatomy Instrumental diagnostic methods Obstetrics, gynecology and andrology Internal diseases Parasitology and invasive diseases Epizootology and infectious diseases Veterinary and sanitary examination Organization of veterinary affairs

			Forensic veterinary examination and dissection of animals Veterinary deontology Economics and organization of agricultural production Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Organization of state veterinary supervision Veterinary and industrial laboratories with design basics Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology Nephrology
GPC -7	He is able to understand the principles of modern information technologies and use them to solve the tasks of professional activity.	-	Instrumental diagnostic methods Organization of veterinary affairs Maths The basics of intellectual work Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Veterinary and industrial laboratories with design basics Anesthesiology, resuscitation and intensive care Dermatology Cardiology Endocrinology

			Nephrology Reconstructive surgery

4. COURSE WORKLOAD AND TRAINING ACTIVITIES

Course workload of the discipline "**Computer science**" is 2 credits.

*Table 4.1. Types of academic activities during the period of the HE program mastering for **full-time** study*

Types of academic activities		**HOURS**	**Semesters**			
			2	**-**	**-**	**-**
Contact academic hours		54	54	-	-	-
including						
Lectures		18	18	-	-	-
Lab work		36	36	-	-	-
Seminars (workshops/tutorials)		-	-	-	-	-
Self-study		8	8	-	-	-
Evaluation and assessment (exam/pass/fail grading)		10	10	-	-	-
Course workload	Academic hour	**72**	**72**	**-**	**-**	-
	Credit unit	**2**	**2**	**-**	**-**	-

*Table 4.2. Types of academic activities during the period of the HE program mastering for **part-time** study*

Types of academic activities		**HOURS**	**Semesters**			
			2	**-**	**-**	**-**
Contact academic hours		18	18	-	-	-
including						
Lectures		-	-	-	-	-
Lab work		18	18	-	-	-
Seminars (workshops/tutorials)		-	-	-	-	-
Self-study		44	44	-	-	-
Evaluation and assessment (exam/pass/fail grading)		10	10	-	-	-
Course workload	Academic hour	**72**	**72**	-	-	-
	Credit unit	**2**	**2**	-	-	-

5. CONTENT OF THE DISCIPLINE

Table 5.1 Content of the discipline (module) by type of academic work

Name of the discipline section	Content of the section (topics)	Types of academic activities
Section 1. Office365 corporate service	Topic 1.1. Service architecture, General settings, Access policies Outlook, Calendar, Users OneDrive, Teams	Lectures, Lab work.
Section 2. Microsoft Word 2016 text editor	Topic 2.1. General settings Typing rules Page Setup Paragraph formatting Bullets, lists, and numbers Graphic Objects Tables Patch and annotations Templates Styles, Headings, Table of contents References Document Merging	Lectures, Lab work.
Section 3. Microsoft Excel 2016 spreadsheet processor	Topic 3.1. General Information Cell format Addressing Formulas and functions Diagrams Sorting Filters Summary tables Connecting to External Sources	Lectures, Lab work.
Section 4. Microsoft PowerPoint 2016 Presentation Preparation Software	Topic 4.1. General Information Slide options Images SmartArt Tables Animations Recommendations	Lectures, Lab work.

6. CLASSROOM INFRASTRUCTURE AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Material and technical support of the discipline

Classroom for Academic Activity Type	***Equipping the classroom***	**Specialized educational/laboratory equipment, software and materials for the development of the discipline** (if necessary)

Lecture	An auditorium for conducting lecture-type classes, equipped with a set of specialized furniture; a board (screen) and technical means of multimedia presentations.	-
Laboratory	An auditorium for laboratory work, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment.	-
Self-studies	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to an electronic information and educational environment.	-

7. RECOMMENDED SOURCES FOR COURSE STUDIES

Main reading:

1. Isaac, M.P. Calculations, graphs and data analysis in Excel 2010. Samouchetel / M.P. Isaak. - SPb.: Science and Technology, 2013. - 352 c.
2. Bill Jelen, Michael Alexander. Summary tables in Microsoft Excel 2013. Williams Publishers, 2017.- 448 p.
3. Kozlov, A. Yu. Statistical data analysis in MS Excel: Tutorial / A.Yu. Kozlov, V.S. Mkhitaryan, V.F. Shishov. - M.: INFRA-M, 2013. - 320 c.
4. Konrad Karlberg. Business analysis using Excel. Williams Publishers, 2015.- 576 p.
5. Mirkin B.G. Introduction to data analysis: Textbook and workshop / B.G. Mirkin. - Lyubertsy: Yurait, 2016. - 174 c.
6. Kuleshova O.V., Microsoft Excel 2010. Extended possibilities. The solution of practical tasks. Computer Training Center "Specialist", 2012.

Additional Reading:

1. Goryainova E.R. Applied methods of statistical data analysis: Textbook / E.R. Goryainova, A.R. Pankov, E.N. Platonov. - MOSCOW: GU HSE INSTITUTE. 2012. - 310 c.
2. Leskovets, Y. Leskovets, A. Rajaraman. - M.: DMC, 2016. - 498 c.
3. Tyurin Y.N. Data Analysis on the Computer: Tutorial / Y.N. Tyurin, A.A. Makarov; Ed. by V.E. Figurnov. - MOSCOW: ID FORUM, 2013. - 368 c.

Resources of the Internet information and telecommunication network:

1. Electronic library system of RUDN and third-party Electronic library systems to which university students have access on the basis of concluded contracts:
- Electronic library system of RUDN - ELS RUDN http://lib.rudn.ru/MegaPro/Web
- ELS "University Library online"http://www.biblioclub.ru

- ELS Yurayt http://www.biblio-online.ru
- ELS "Student Consultant"www.studentlibrary.ru
- ELS "Lan"http://eZlanbook.com/
- ELS "Trinity Bridge"http://www.trmost.com/

2. Databases and search engines:

- electronic fund of legal and regulatory and technical documentation http://docs.cntd.ru/
- search engine Yandex https://www.yandex.ru/
- search engine Google https://www.google.ru/
- abstract database SCOPUS http://www.elsevierscience.ru/products/scopus/

Educational and methodological materials for independent work of students during the development of the discipline/ module*:

1. A course of lectures on the discipline "**Computer science**".
2. Laboratory workshop on the discipline "**Computer science**".

* - All educational and methodological materials for independent work of students are placed in accordance with the current procedure on the discipline page in the **Telecommunication educational and Information System!**

8. MID-TERM ASSESSMENT

Evaluation materials and a point-rating system* for assessing the level of competence formation (part of competencies) based on the results of mastering the discipline "**Computer science**" are presented in the Appendix to this Work Program of the discipline.

* - Assessment Materials and a Point Rating System are formed based on the requirements of the relevant local regulatory act of the RUDN.

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