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**Federal State Autonomous Educational Institution for Higher Education PEOPLES'  
FRIENDSHIP UNIVERSITY OF RUSSIA  
Agrarian and Technological Institute**

## **WORKING COURSE SYLLABUS**

### **Clinical diagnostics**

**Recommended by the Methodological Council for the Education Field:**

#### **36.03.01 Veterinary and sanitary examination**

**The development of the discipline is carried out within the framework of the implementation of the main professional educational program of higher education (EP HE):**

#### **Veterinary and sanitary examination**

## 1. GOALS AND OBJECTIVES OF THE DISCIPLINE

The aim of mastering the discipline "**Clinical diagnostics**" is to develop professional knowledge and skills for using in veterinary medicine methods designed for the diagnosis and differential diagnosis of diseases of various etiologies in animals. This is necessary for the veterinarian to correctly apply the methods and correctly interpret the results obtained, to provide scientific justification for their actions and decisions taken for the appointment and treatment of animals

## 2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The development of the discipline "**Clinical diagnostics**" 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)*

| <b>Code</b> | <b>Competence</b>   | <b>Indicators of competence accomplishment (within the discipline)</b>  |
|-------------|---|---|
| GPC-3       | Ability to carry out professional activities in accordance with regulatory legal acts in the field of agro-industrial complex   | GPC-3.1 Knows modern legal norms regulating activities in the field of veterinary and sanitary examination and agro-industrial complex                                  |
|             |   | GPC-3.2 Has the skills to update legal information, including in the field of agro-industrial complex   |
|             |   | GPC-3.3 Carries out activities in accordance with the regulatory legal acts in the field of agro-industrial complex and veterinary and sanitary examination             |
| GPC-4       | The ability to substantiate and implement modern technologies in professional activities using the instrumental base and use the basic natural, biological and professional concepts and methods in solving general professional problems | GPC-4.1 Owns the conceptual and methodological apparatus of the basic natural sciences at a level sufficient for full-fledged professional activity at the modern level |
|             |   | GPC-4.2 Owns a professional conceptual and methodological base for solving a wide range of general professional tasks   |
|             |   | GPC-4.3 Owns methods for solving problems using modern technologies and instrumentation   |
| PC-1        | Ability to conduct pre-mortem veterinary inspection of animals to assess their health status  | PC-1.1 Capable of conducting a general clinical examination of animals destined for slaughter and determining their clinical status                                     |

|  |  |   |
|--|--|---|
|  |  | PC-1.2 Able to identify deviations from the normative indicators of the health of slaughtered animals and determine the causes of these deviations  |
|  |  | PC-1.3 Able to identify the risks of the emergence and spread of infectious and parasitic diseases in the group of slaughter animals in case of violations of normative health indicators in animals intended for slaughter |
|  |  | PC-1.5 Able to draw up accounting and reporting documentation based on the results of pre-slaughter inspection of animals   |

### 3. COURSE IN HIGHER EDUCATION

The discipline "**Clinical diagnostics**" belongs to the part formed by the participants of educational relations of the 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 "**Clinical diagnostics**".

*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)   |
|-----------------|---|--------------------------------|--|
| OPK-3           | Ability to carry out professional activities in accordance with regulatory legal acts in the field of agro-industrial complex | Jurisprudence                  | Organization of veterinary business<br><br>Animal products processing technology<br><br>Veterinary and sanitary control of plant products<br><br>Industrial veterinary and sanitary control<br><br>Sanitary microbiology<br>Organization of laboratory activities<br><br>Judicial veterinary and |

|       |   |  |   |
|-------|---|--|---|
|       |   |  | <p>sanitary examination</p> <p>Educational practice</p> <p>Practice for quality control of livestock products</p> <p>General professional practice</p> <p>Academic research practice with the preparation of a scientific qualification project</p> <p>Preparation for passing and passing the state exam</p>   |
| OIK-4 | The ability to substantiate and implement modern technologies in professional activities using the instrumental base and use the basic natural, biological and professional concepts and methods in solving general professional problems | <p>Applied Animal Anatomy</p> <p>Organic chemistry</p> <p>Inorganic and Analytical Chemistry</p> <p>biological physics</p> <p>Physical and colloidal chemistry</p> <p>Biology</p> <p>Cytology, histology and embryology</p> <p>biological chemistry</p> <p>Maths</p> <p>Fundamentals of Economics and Management</p> <p>General and veterinary ecology</p> | <p>Pathological anatomy</p> <p>Organization of veterinary business</p> <p>Infectious diseases</p> <p>Parasitic diseases</p> <p>Surgical diseases</p> <p>Animal products processing technology</p> <p>Toxicology with Fundamentals of Pharmacology</p> <p>Non-communicable diseases</p> <p>Veterinary and sanitary examination</p> <p>Veterinary and sanitary control of plant products</p> <p>Industrial veterinary</p> |

|      |  |  |   |
|------|--|--|---|
|      |  | <p>Technology of feeding productive animals</p> <p>Technology of milk and dairy products</p> <p>animal health</p> <p>animal breeding</p> <p>Educational practice</p> | <p>and sanitary control</p> <p>Sanitary microbiology</p> <p>Organization of laboratory activities</p> <p>Judicial veterinary and sanitary examination</p> <p>Pathological anatomy / term paper</p> <p>Veterinary sanitation</p> <p>Educational practice</p> <p>Practice for quality control of livestock products</p> <p>General professional practice</p> <p>Academic research practice with the preparation of a scientific qualification project</p> <p>Preparation for passing and passing the state exam</p> |
| ПК-1 | Ability to conduct pre-mortem veterinary inspection of animals to assess their health status | <p>Applied Animal Anatomy</p> <p>Educational practice</p>  | <p>Pathological anatomy</p> <p>Infectious diseases</p> <p>Parasitic diseases</p> <p>Surgical diseases</p> <p>Toxicology with Fundamentals of Pharmacology</p> <p>Non-communicable diseases</p>  |

|  |  |  |   |
|--|--|--|---|
|  |  |  | Veterinary and sanitary examination<br><br>Industrial veterinary and sanitary control<br><br>Educational practice<br><br>General professional practice<br><br>Practice for quality control of livestock products<br><br>Academic research practice with the preparation of a scientific qualification project<br><br>Preparation for passing and passing the state exam |
|--|--|--|---|

#### 4. COURSE WORKLOAD AND TRAINING ACTIVITIES

Course workload of the discipline " **Clinical diagnostics** " 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 |           |   |   |   |
|--|--|---------------|-----------|-----------|---|---|---|
|  |  |               | 4         | -         | - | - |   |
| 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        | -         | - | - |   |
| <b>Course workload</b>                             |  | Academic hour | <b>72</b> | <b>72</b> | - | - | - |
|  |  | Credit unit   | <b>2</b>  | <b>2</b>  | - | - | - |

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 |           |   |   |
|--|--|---------------|-----------|-----------|---|---|
|  |  |               | 4         | -         | - | - |
| Contact academic hours                             |  | 18            | 18        | -         | - | - |
| including  |  |               |           |           |   |   |
| Lectures   |  | -             | -         | -         | - | - |
| Lab work   |  | 18            | 18        | -         | - | - |
| Seminars (workshops/tutorials)                     |  | -             | -         | -         | - | - |
| Self-study   |  | 38            | 38        | -         | - | - |
| Evaluation and assessment (exam/pass/fail grading) |  | 16            | 16        | -         | - | - |
| <b>Course workload</b>                             |  | Academic hour | <b>72</b> | <b>72</b> | - | - |
|  |  | Credit unit   | <b>2</b>  | <b>2</b>  | - | - |

Table 4.3. Types of educational work by periods of development of EP HE for CORRESPONDENCE forms of education

| Types of academic activities                       |  | HOURS         | Semesters |           |   |   |
|--|--|---------------|-----------|-----------|---|---|
|  |  |               | 5         | 6         | - | - |
| Contact academic hours                             |  | 2             | 2         | -         | - | - |
| Including  |  |               |           |           |   |   |
| Lectures   |  | -             | -         | -         | - | - |
| Lab work   |  | 2             | 2         | -         | - | - |
| Seminars (workshops/tutorials)                     |  | -             | -         | -         | - | - |
| Self-study   |  | 67            | 67        | -         | - | - |
| Evaluation and assessment (exam/pass/fail grading) |  | 3             | 3         | -         | - | - |
| <b>Course workload</b>                             |  | Academic hour | <b>72</b> | <b>72</b> | - | - |
|  |  | Credit unit   | <b>2</b>  | <b>2</b>  | - | - |

## 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. Introduction        | Topic 1. Introduction to the discipline. History of the development of veterinary clinical diagnostics | LK, LR                       |
| Section 2. Biogeocenotic       | Topic 2.1. Significance and ecological   | LK, LR                       |

|  |  |        |
|--|--|--------|
| diagnostics                                      | characteristics of animal populations and biogeocenoses for the diagnosis of endemic diseases                              |        |
|  | Topic 2.2. Diagnostic stage of medical examination   | LR     |
| Section 3. The cardiovascular system             | Topic 3.2. Methods of studying the heart and blood vessels   | LK, LR |
| Section 4. Respiratory system                    | Topic 4.1. Examination of the upper respiratory tract and chest. Research methods and clinical signs of respiratory damage | LK, LR |
| Section 5. The digestive system                  | Topic 5.1. Study of the digestive system of ruminants  | LK, LR |
|  | Topic 5.2. Study of the digestive system of horses, carnivores and omnivores   | LR     |
| Section 6. Urinary system                        | Topic 6.1. Research of the urinary system  | LK, LR |
|  | Topic 6. 2. Laboratory examination of urine  | LR     |
| Section 7. The nervous system                    | Topic 7.1. Research of the central nervous system  | LK, LR |
|  | Topic 7.2. Study of the peripheral and autonomic nervous systems   | LR     |
| Section 8. Fundamentals of clinical biochemistry | Topic 8.1. Diagnostics of protein and carbohydrate metabolism disorders  | LK, LR |
|  | Topic 8.2. Diagnostics of fat, water-electrolyte, vitamin-mineral metabolism disorders                                     | LR     |
|  | Topic 8.3. Fundamentals of enzyme diagnostics  | LR     |
| Section 9. The endocrine system                  | Topic 9.1. Examination of the endocrine glands (ultrasound, X-ray examination, thermography, laboratory tests)             | LK, LR |
|  | Topic 9.2. Laboratory methods of examination of the endocrine glands   | LR     |

## 6. CLASSROOM INFRASTRUCTURE AND TECHNOLOGY SUPPORT REQUIREMENTS

*Table 6.1. Material and technical support of the discipline*

| <i>Classroom for</i> | <i>Equipping the classroom</i> | <i>Specialized</i> |
|----------------------|--------------------------------|--------------------|
|----------------------|--------------------------------|--------------------|



| <i>Academic Activity Type</i>           |   | <b>educational/laboratory equipment, software and materials for the development of the discipline (if necessary)</b> |
|---|---|--|
| <i>Lecture</i>                          | <i>An auditorium for lecture-type classes, equipped with a set of specialized furniture; board (screen) and technical means<br/><br/>multimedia presentations.</i>                  |  |
| <i>Laboratory</i>                       | <i>An auditorium for laboratory work, individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and equipment.</i>     |  |
| <i>For independent work of students</i> | <i>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 EIOS.</i> |  |

## 7. RECOMMENDED SOURCES FOR COURSE STUDIES

### *Main reading:*

1. Internal diseases of animals. Prevention and therapy: textbook / G. G. Shcherbakov, A. V. Korobov, B. M. Anokhin [and others]. - 5th ed., Rev. and additional - St. Petersburg: Lan, 2022. - 736 p. - ISBN 978-5-8114-0012-2. — Text: electronic // Doe: electronic library system. - URL: <https://e.lanbook.com/book/210272>

2. Samsonova, T. S. Veterinary physiotherapy: a textbook for universities / T. S. Samsonova, T. T. Levitskaya, A. Sh. Karimova. - St. Petersburg: Lan, 2022. - 360 p. - ISBN 978-5-8114-8232-0. — Text: electronic // Doe: electronic library system. - URL: <https://e.lanbook.com/book/187550>

### *Additional Reading:*

1. A guide to practical exercises on internal non-contagious spaces: a textbook by A. V. Yashin, G. G. Shcherbakov, N. A. Kochueva [and others]; under the general editorship of A. V. Yashin. - 2nd ed., revised. - St. Petersburg: Lan, 2022. - 172 p. - ISBN 978-5-8114-1957-9. — Text: electronic // Doe: electronic library system. - URL: <https://e.lanbook.com/book/206060>
2. Non-infectious pathology of cattle in farms with industrial technology: a textbook / A. V. Yashin, G. G. Shcherbakov, I. I. Kalyuzhny [and others]; under the general editorship of A. V. Yashin. - St. Petersburg: Lan, 2022. - 220 p. - ISBN 978-5-8114-4058-0. — Text: electronic // Doe: electronic library system. - URL: <https://e.lanbook.com/book/207065>
3. Complex therapy and therapeutic technique in veterinary medicine: textbook / A. A. Stekolnikov, G. G. Shcherbakov, A. V. Korobov [and others]; edited by A. A.

Stekolnikov. - St. Petersburg: Lan, 2022. - 288 p. - ISBN 978-5-8114-0676-0. — Text: electronic // Doe: electronic library system. - URL: [https://e.lanbook.com/book/210158Resources of the Internet information and telecommunication network](https://e.lanbook.com/book/210158Resources_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](http://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 "**Clinical diagnostics**".
2. Laboratory workshop on the discipline "**Clinical diagnostics**".

\* - 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 "**Clinical diagnostics**" 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.

### DEVELOPER:

Associate Professor of the Department of Veterinary  
Medicine

Position, Basic curriculum

Signature

Karamyan A.S.

Full name.

### HEAD OF THE DEPARTMENT:

Department of Veterinary Medicine

Name Basic Curriculum

Signature

Vatnikov Yu.A.

Full name.

### HEAD OF THE HIGHER EDUCATION PROGRAM:

Associate Professor of the Department of Veterinary  
Medicine

Position, Basic curriculum

Signature

Krotova E.A.

Full name