

**Federal State Autonomous Educational Institution higher education  
"Peoples' Friendship University of Russia"**

**Medical Institute**

Recommended by ISSC

**WORKING PROGRAMM  
SCIENTIFIC RESEARCH PRACTICE**

**Recommended for training of highly qualified personnel  
to direct training**

31.06.01 Clinical medicine

**Profile**

14.01.04 Internal disease: heart failure

**Qualification (degree) of the graduate:**

Researcher. Research instructor

## **1. Objectives of research practice**

The purpose research practices is the expansion of the professional outlook of the graduate student, the consolidation and deepening of practical skills in scientific activity and the formation of professional competencies in the field of research activities in the direction of 31.06.01 Clinical medicine, profile 14.01.04 Internal disease: heart failure.

Research practice is organized in close relationship with the research work of a graduate student and contributes to the formation of competencies necessary for conducting research and developing the skills of independent research work as part of the department scientific school.

## **2. Research practice objectives**

- ensuring the formation of professional research thinking of graduate students, the formation of a clear idea of the main professional tasks, ways of solving them;
- developing skills to develop work plans and research programs;
- preparation of data for the compilation of reviews, reports, scientific reports and publications;
- the formation of skills and ability to conduct a scientific discussion, present the results of research in various forms (presentation, abstract, essay, analytical review, critical review, report, message, speech, scientific article of a review, research and analytical nature, etc.);
- gaining experience in the independent organization of research activities.

## **3. The place of research and practice in the structure of the OOP**

Students in the direction 31.06.01 Clinical Medicine, profile 14.01.04 Internal disease: heart failure (higher education - training of highly qualified personnel) undergo research practice in Block 2, variable part, 1 semester (6 EC, 216 hours).

Research practice in the system of training highly qualified personnel is a component of professional training for research activities in a higher educational institution and is a type of practical activity of graduate students.

For successful research practice, a graduate student must master the program of discipline "Research Methodology", have preliminary training in one of the following profiles of the direction "Clinical Medicine": therapy, cardiology, gastroenterology, endocrinology, pulmonology, nephrology, hematology, clinical and laboratory diagnostics ( residency), have the initial skills of scientific search, be able to independently work with the main information sources, select literature on a given topic, prepare abstract reviews on the research topic, analyze concepts, and have skills in using information technologies and databases.

## **4. Forms of research practice.**

The main form is research work, which takes place within the framework of the implementation of the curriculum for the preparation of a graduate student.

At the end of the research practice, the main task of the student is to prepare the concept of a Ph.D. thesis, form a plan for writing a research paper (collecting, analyzing and summarizing scientific material, formulating conclusions and recommendations), planning the timing of approbation of the results.

The postgraduate student draws up a plan of publication activity for the entire period of study in graduate school (terms of publication of scientific articles on the topic of scientific research in journals included in the list of RSCI, Wos and Scopus), a plan for participation in scientific conferences, seminars, round tables; the plan of participation in the scientific work of the department of education; examines the requirements and possibilities of applying for the Grant.

At the end of the internship, the graduate student forms a personal research portfolio, prepares and defends a report on the internship.

## **5. Place and time of the research practice**

Research work and practice is carried out in the university, medical organizations, clinical bases of specialized departments, libraries. The place of work is determined taking into account the topic of scientific research and the specialized department of training.

No. p / p	Practice name	Semester	Year	Place of practice	Total number of allocated jobs
one	Research practice	one	one	Scientific library of the RUDN University, classrooms of the department of education, medical, diagnostic departments, archives of medical documentation of clinical bases of the profile department: Department of Internal Medicine with a course of cardiology and functional diagnostics named after V.S. Moiseeva (Moscow, Vavilova str., 61, GBUZ "GKB named after V.V. Vinogradov, Moscow DZ").	

#### **6. The competencies of the student, formed as a result of the passage of research practice.**

In the process of mastering the discipline, the following universal competencies (UC) are formed:

- the ability to critically analyze and evaluate modern scientific achievements, generate new ideas in solving research and practical problems, including in interdisciplinary areas (UC-1);
- the ability to design and carry out complex research, including interdisciplinary, based on a holistic systemic scientific worldview using knowledge in the field of history and philosophy of science (UC-2);
- willingness to participate in the work of Russian and international research teams to solve scientific and scientific and educational problems (UC-3);

In the process of mastering the discipline, the following general professional competencies (GPC) are formed:

- ability and readiness to organize applied scientific research in the field of biology and medicine (GPC-1);
- ability and readiness to conduct applied scientific research in the field of biology and medicine (GPC-2);
- the ability and willingness to analyze, generalize and publicly present the results of completed scientific research (GPC-3);

In the process of mastering the discipline, the following professional competencies (PC) are formed:

- ability and readiness to organize and conduct applied research in the field of clinical medicine (PC-1);
- ability and readiness to analyze, generalize and publicly present the results of scientific research in the field of clinical medicine (PC-2);

As a result of the internship, the student must:

#### **know:**

- research methodology;
- modern technologies of information search and processing;

- requirements for the quality, completeness and reliability of sources of scientific information used in scientific research;
- requirements for the registration of scientific research results;

**be able to:**

- organize independent research work;
- identify, formulate topical problems in the research area, set goals, define the subject and objectives of the research;
- collect, systematize and study scientific literature in the field of the research topic;
- conduct clinical research;
- analyze medical documentation on the research topic;
- to argue the results of their own scientific research and make informed conclusions;
- present the results of scientific research in the form of completed research works: reports, abstracts, reports, abstracts, scientific articles;

**own:**

- skills of independent research work;
- research methods and experimental work and rules for the use of research tools;
- methods of analysis and processing of experimental and empirical data, means and methods of data processing;
- skills in the use of modern software for statistical data processing;
- scientific and theoretical approaches of domestic and foreign scientists on the problem under study, methods of analyzing data accumulated in the scientific industry on the topic of research;
- methods of organization, planning, and implementation of scientific work, knowledge of the design of the results of research work;
- skills of public speaking;
- skills of preparation of presentations and scientific reports, preparation of scientific articles and scientific work.

**7. Structure and content of research practice**

	Sections (stages of) practice	Types / section of practice	Labor intensity, ac. clock (WE)	Monitoring forms
1	Preparatory stage	Study of guidelines for organizing and passing research practice, the purpose, objectives of the practice and the form of reporting.	36 (1 WE)	Offset (exhibited by the head of the practice, based on the completion of the tasks of the first stage and the interim report on the practice)
		Development of an individual practice program		
		Development of the theoretical concept of clinical research		
		Development of a conceptual research scheme, research protocol		
		Selection of optimal methods of statistical analysis, determination of the sample size		

2	The main stage	Conducting a pilot study on the topic of scientific work. Collection of information, formation of primary documentation	108 (3 WE)	Offset (exhibited by the head of the practice, based on the completion of the tasks of the second stage and the interim report on the practice)
		Presentation of the results of a pilot study in the form of a scientific presentation, a scientific report at a meeting of the department		
		Study of the requirements for the submission of grant applications on the topic of research, registration of an application for a Grant		
		Analysis and processing of primary research data		
		Development of tabular and graphical applications for dissertation work		
		Preparation of a scientific report based on the research results in the form of a scientific article plan, a scientific report plan at scientific conferences, including international		
3	The final stage	Development of conclusions and recommendations based on the research results	72 (2 3E)	Graded credit (exhibited at a meeting of the department on the basis of completing tasks of the third stage and a report on practice)
		Formation of a personal research dossier of a graduate student (portfolio)		
		Summing up the results of research work. Preparation and defense of the practice report.		
Total			216 (6 WE)	

## 7. Educational, research and production technologies used in research practice:

### Preparatory stage:

-At the preparatory stage, the graduate student independently studies the recommended methodological literature necessary for performing research work, gets acquainted with the research program. After that, the postgraduate student, together with the head of the practice (scientific advisor), draws up a work plan for conducting scientific research. For full-time graduate students, if necessary, an organizational meeting is held, where the goals, objectives, and content of the practice are determined.

### The main stage:

- Formulation of goals, objectives, research prospects. Determination of the relevance and scientific novelty of the work. Formulation of the topic and structure of scientific work (together with the supervisor);
- Study and review of scientific literature (foreign and domestic) on the topic of dissertation work;
- Acquaintance with scientific methods, technology of their application, methods of processing the obtained empirical data and their interpretation;
- Writing the first chapter of the thesis "Literature Review" on the research topic;
- Participation in the research work of the specialized department
- Carrying out a pilot research study on the topic of research work;

- Planning of methods and forms of collection and generalization of material;
- Planning methods of statistical processing and analysis of the data obtained;
- Preparation of a plan for the publication of scientific articles in journals of the list of RSCI, Wos / Scopus, foreign journals
- Preparation of a plan of speeches at scientific conferences, congresses, seminars with the obligatory publication of abstracts;
- Participation in the research work of the specialized department
- Development of a plan for analyzing the results obtained, formulating conclusions, conclusions, practical recommendations based on the results of research work;

**The final stage:**

- Summing up the results of research practice;
- Preparation of a scientific report and presentation;
- Discussion of the plan for writing a scientific research at a meeting of the department;

**8. Educational and methodological support of independent work of graduate students in research practice:**

The independent work of graduate students is carried out in accordance with an individual plan developed jointly by the graduate student and his supervisor and approved at a meeting of the specialized department.

The graduate student in his work uses sources on the topic of his scientific research. The postgraduate student is obliged to familiarize himself with the works on the topic of his research, recommended to him by the scientific advisor, leading scientists in the field of clinical medicine. It is mandatory for a graduate student to familiarize himself with the works on the topic of his research published in leading international publications.

When choosing a research topic, a graduate student and his supervisor should take into account the following recommendations:

- the topic of scientific research should correspond to the priority areas of scientific research;
- within the framework of the study, a problem should be solved that is relevant for the relevant profile of clinical medicine;
- when planning research practice, the graduate student should have the opportunity to test the research results in clinical practice, and the results of such testing should not raise doubts about their reliability;

The graduate student conducts research work independently, avoiding plagiarism and minimizing word-for-word borrowing from his previously published works. Research activity involves acquaintance with the work of dissertation councils, regulatory documents governing their activities, the procedure for filing a presentation for defense and defense of a dissertation in the corresponding profile of the direction of clinical medicine.

**9. Educational, methodological and informational support of practice:**

a) main literature

1. Glantz S. Biomedical statistics. Per. from English - M., Practice. 1999: 459 s.
2. Rebrova O.Yu. Statistical analysis of medical data. Moscow. "Media Sphere". 2000: 312 s.
3. Martin Bland. An Introduction to medical statistics. OUP Oxford. 2015: 447.
4. Ramakrishna HK Medical Statistics: For Beginners. Springer. 1st Ed. 2017.

b) additional literature

1. Raizberg B.A. Dissertation and academic degree. M., 2011.
2. Yarskaya V.N. Methodology of dissertation research. How to defend a thesis. M., 2011.
3. Volkov YUG. Thesis. Preparation, protection, registration. M., 2012.
4. Kuzin FA. Thesis. Writing technique. Registration rules. Protection order. M., 2013.

5. A.M. Novikov Research methodology [Text]: textbook. Method. manual / A. M. Novikov, D. A. Novikov. - M.: LIBROKOM, 2010. -- 280 p.

c) software:

1. Office software package (Office, MsOffice);
2. Software package for statistical data processing (Statistics 6.2-7.0, StatSoft, Stata).

d) databases, reference and search systems:

- RUDN educational portal
- Scientific electronic library <http://elibrary.ru/>
- Scientific and educational portal: <http://www.eup.ru>
- Administrative and management portal: <http://www.aup.ru>
- Educational portal: <http://www.informika.ru>
- Portal of the All-Russian Scientific Society of Cardiology and the Association of Pediatric Cardiologists of Russia. <http://www.cardiosite.ru/>
- Portal of the European Association of Cardiology. <http://www.escardio.org/>
- American Heart Association website. <http://www.heart.org/HEARTORG/>
- American Heart Association website. [www.acc.org](http://www.acc.org)
- Electronic library system of RUDN University;
- RUDN educational portal (<http://web-local.rudn.ru/>);
- Scientific electronic library (<http://elibrary.ru/defaultx.asp>);
- ONLINE universal library (<http://biblioclub.ru/>);
- Library of electronic journals BENTHAM OPEN (<http://www.benthamscience.com/open/az.htm>);
- Elsevier Electronic Journal Library (<http://www.elsevier.com/about/open-access/open-archives>)
- Medical online library MedLib (<http://med-lib.ru/>);
- Recommendations of the Russian Society of Cardiology [www.scardio.ru](http://www.scardio.ru)
- US National Library of Medicine National Institutes of Health: <http://www.ncbi.nlm.nih.gov/pubmed/>
- Scientific electronic library: <http://library.ru/defaultx.asp>

## 11. Logistics support of the practice:

Computer / laptop, multimedia projector with a screen, demonstration tables, dummies, standard diagnostic, laboratory equipment of departments of clinical bases of the department, medical documentation, information medical systems (if any) of clinical bases of specialized departments.

## 12. Forms of interim / final certification based on the results of practice:

Attestation for research practice is carried out by the supervisor based on the results of the assessment of all forms of postgraduate student reporting. To obtain a positive assessment, a graduate student must fully complete the entire content of the practice, timely draw up the current and final documentation. A trainee who has not completed the internship program or has not provided its results in a timely manner is considered not certified.

Based on the results of the practice, the postgraduate student provides a written report in the form approved by the university and at the specialized department. The report is heard and approved at a meeting of the department. The report should contain information on the implementation of an individual plan, a plan for preparing for publication and published scientific articles in journals of the Higher Attestation Commission and RSCI, foreign journals, a plan for the participation of a graduate student in Russian and international conferences on the profile of training, a plan for participation in the research work of the Department of Education ...

The report must be accompanied by documents confirming the achievements indicated in the report (copies of articles, reports, primary data collected as a result of research, etc.).

### 13. Fund of assessment tools for intermediate certification of students in research practice

The results of passing each section of the practice are assessed by conducting an intermediate and final certification, with marks on the system "excellent", "good", "satisfactory", "unsatisfactory" and in the ECTS system (A, B, C, D, E), taking into account points - the rating system adopted by the University.

#### The scoring structure of the assessment:

Types of educational work / sections of practice	Maximum points
<b>Preparatory stage, including:</b>	<b>15</b>
Study of guidelines for organizing and passing research practice, the purpose, objectives of the practice and the form of reporting.	3
Development of an individual practice program	3
Development of the theoretical concept of clinical research	3
Development of a conceptual research scheme, research protocol	3
Selection of optimal methods of statistical analysis, determination of the sample size	3
<b>The main stage, including:</b>	<b>55</b>
Conducting a pilot study on the topic of scientific work. Collection information, formation of primary documentation	10
Presentation of the results of a pilot study in the form of a scientific presentation, a scientific report at a meeting of the department	10
Study of the requirements for the submission of grant applications on the topic of research, registration of a grant application	10
Analysis and processing of primary research data, development of tabular and graphical applications to the dissertation work	15
Preparation of a scientific report based on the research results in the form of a scientific article plan, a scientific report plan at scientific conferences, including international	10
<b>The final stage, including:</b>	<b>30</b>
Development of conclusions and recommendations for the implementation of research results into clinical practice	10
Formation of a personal research dossier of a graduate student (portfolio)	10
Summing up the results of research work. Preparation and defense of the practice report.	10
<b>Total</b>	<b>100</b>

#### Correspondence of grading systems (previously used grades of final academic performance, ECTS grades and the point-rating system (BRS) of grades)

(In accordance with the Order of the Rector No. 420 dated 05.05.2016):

BRS points	Traditional assessments in the Russian Federation	Points to translate grades	Evaluations	ECTS grades

86 - 100	Excellent	95 - 100	5+	A
		86 - 94	5	B
69 - 85	Okay	69 - 85	4	C
51 - 68	Satisfactorily	61 - 68	3+	D
		51 - 60	3	E
0 - 50	Conditionally unsatisfactory	31 - 50	2+	Fx
	Unsatisfactory	0 - 30	2	F

### Evaluation tools, criteria and indicators for assessing learning outcomes

Competence assessed	Practice type / section	Evaluation tool	Evaluation criteria
UC-1, UC-2, UC-3, GPC-1, GPC-2, GPC-3, PC-1, PC-2	Study of guidelines for organizing and passing research practice, the purpose, objectives of the practice and the form of reporting.	Plan scientific research, including the formulation of the research topic, relevance, purpose, research objectives, description of the required sample size and methods of statistical analysis	Planning depth Consistency and sequence of presentation Conformity Topics studies of the declared relevance, compliance with the purpose and objectives of the research topic Adequacy of the proposed statistical analysis methods
	Development of an individual practice program		
	Development of the theoretical concept of clinical research		
	Development of a conceptual research scheme, research protocol		
	Selection of optimal methods of statistical analysis, determination of the sample size		
UC-1, UC-2, UC-3, GPC-1, GPC-2, GPC-3, PC-1, PC-2	Conducting a pilot study on the topic of scientific work. Collection of information, formation of primary documentation	Primary documentation containing the collected data	Relevance, the accuracy and completeness of the information collected
	Presentation of the results of a pilot study in the form of a scientific presentation, a scientific report at a meeting of the department	Presentation, text of the report	Content of the report, completeness of presentation of research results. Technical presentation
	Study of the requirements for submitting grant applications on the topic of research, registration of an application for	Research Grant Application	Compliance of the application with the requirements, correspondence of the content of the application to the specifics of the study
	Analysis and processing of primary research data	Examples of tables, graphs, algorithms for statistical processing of the received primary data	Contents of tables, graphs, completeness of presentation of research results, statistical processing.
	Development of tabular and graphical applications for dissertation work		

	Preparation of a scientific report based on the research results in the form of a scientific article plan, a scientific report plan at scientific conferences, including international	Article, text of the report, presentation, list of planned publications, conferences, publication activity plan	The content of the scientific article, its compliance with the research results. Scientific novelty. Correctness of borrowing. Completeness of publication activity.
UC-1, UC-2, UC-3, GPC-1, GPC-2, GPC-3, PC-1, PC-2	Development of conclusions and recommendations based on the research results	conclusions and practical advice according to the research	Conformity of conclusions and practical findings of the study. Correspondence of the Zedi findings and research objectives
	Formation of a personal research dossier of a graduate student (portfolio)	Personal portfolio	Completeness and reliability of information about the learning outcomes and scientific activities of a graduate student
	Summing up the results of research work. Preparation and defense of the practice report.	Practice report	Correctness of the report in accordance with the requirements of the RUDN University. Completeness and reliability of the content of the report on the work performed

<b>Assessment indicators</b>	<b>Evaluation criteria</b>
The section / stage of the practice is completed in full. Reporting documents (plans, articles, presentations, reports) are formed in full compliance with the requirements for content and design	100% of points from the maximum possible
The section / stage of the practice is completed in full. There are some shortcomings or comments on the design or content of the reporting documentation	50% of points from the maximum possible
Section / practice stage not completed or partially completed. There are gross violations in the content or design of reporting documentation	0 points

**Developers:**

<b>Head of Department</b>	Internal diseases with the course of cardiology and functional diagnostics named after V.S. Moiseev	Kobalava Zh.D.
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	Preparation of a scientific report based on the research results in the form of a scientific article plan, a scientific report plan at scientific conferences, including international	Article, text of the report, presentation, list of planned publications, conferences, publication activity plan	The content of the scientific article, its compliance with the research results. Scientific novelty. Correctness of borrowing. Completeness of publication activity.
UC-1, UC-2, UC-3, GPC-1, GPC-2, GPC-3, PC-1, PC-2	Development of conclusions and recommendations based on the research results	conclusions and practical advice according to the research	Conformity of conclusions and practical findings of the study. Correspondence of the Zedi findings and research objectives
	Formation of a personal research dossier of a graduate student (portfolio)	Personal portfolio	Completeness and reliability of information about the learning outcomes and scientific activities of a graduate student
	Summing up the results of research work. Preparation and defense of the practice report.	Practice report	Correctness of the report in accordance with the requirements of the RUDN University. Completeness and reliability of the content of the report on the work performed

Assessment indicators	Evaluation criteria
The section / stage of the practice is completed in full. Reporting documents (plans, articles, presentations, reports) are formed in full compliance with the requirements for content and design	100% of points from the maximum possible
The section / stage of the practice is completed in full. There are some shortcomings or comments on the design or content of the reporting documentation	50% of points from the maximum possible
Section / practice stage not completed or partially completed. There are gross violations in the content or design of reporting documentation	0 points

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