

*Federal State Autonomous Educational Institution of Higher Education  
«Peoples' Friendship University of Russia»*

*the Shared Research and Educational Center*

**THE WORKING PROGRAM OF THE DISCIPLINE**

**Name of the discipline**

**Scientific Research Practice**

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**Recommended for (field/ specialty)**

**33.06.01 Pharmacy**

*(указываются код и наименование направления подготовки (специальности))*

**The direction of the program**

**Pharmaceutical technology (in collaboration with the University of Basel)**

*(наименование образовательной программы в соответствии с направленностью (профилем))*

## 1. Objectives of Scientific Research Practice

The objectives of this scientific research graduate students are:

- Expand, increase the acquired professional knowledge in the educational process.;
- Acquiring of practical skills in studying topical scientific problems for systems analysis, management and information processing.;
- preparation of scientific and qualification work (dissertation or thesis).

## 2. Tasks of Scientific Research Practice

Tasks for postgraduate students are:

- problem formulation,
- explore possible approaches to solve this problem,
- propose and justify your solution to the problem,
- Practical testing and evaluation of the proposed solution,
- prepare a scientific and qualification work (dissertation) that meets the requirements for candidate dissertations

## 3. Scientific Research practice in the structure of Object-oriented programming

Scientific Research practice is in the field of 33.06.01 Pharmacy, direction of Pharmaceutical Technology (with the University of Basel) in the system of training highly qualified personnel is a component of professional training for research activities of a higher education institution.

Scientific research includes research activities and the preparation of a scientific qualification work (dissertation) for the degree of Candidate of Science. For the successful implementation of scientific research, a graduate student must have knowledge of specialized disciplines. Scientific research is carried out on an individual basis, according to an individual plan, within the time frame stipulated in the curriculum and training schedule.

## 4. Forms of Scientific Research practice.

The main form of conducting research practice in pharmacy 3306.01, pharmaceutical technology (with the University of Basel) (higher education - training of highly qualified personnel) is Scientific research work.

The practice takes place within the framework of the implementation of the curriculum for the preparation of postgraduate students.

The internship program includes the preparation and conduct of scientific research, for example:

1. development of the composition of tablets for resorption;
2. study the technological characteristics of the mass for creating tablets;
3. selection of alternative technology for producing these tablets;
4. development of standardization techniques.

At the end of the scientific research practice, the postgraduate student defends the report of his work.

During the program, the main task of the student is to complete the research on the topic of the final qualifying work (Ph.D. thesis). For this, the graduate student must conscientiously fulfill the instructions of the direct scientific supervisor. The postgraduate student publishes scientific articles on the topic of his own research in journals included in the list of VAK and RSCI, speaks at scientific conferences, seminars, round tables, prepares a Ph.D. thesis.

The content of research practice may vary depending on the specifics of the research

conducted by the postgraduate student and is determined by the supervisor.

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

Scientific Research practice is included in Block 2 "Practices" and is aimed at obtaining a graduate student of professional skills and professional experience.

The postgraduate student undergoes research practice for 6 credit points (216 hours) under the guidance of a scientific adviser on the basis of the Shared Research and Educational Centre or other institutions (if necessary) and libraries. The place of internship is determined taking into account the approved topic of the final qualifying work (Ph.D. thesis) of the student.

№ п/п	The name of the practice in accordance with the curriculum	Semester	Years of practice	Place of practice	Total number of allocated jobs
1	The scientific research practice	1	1	the Shared Research and Educational Centre	At the discretion of the the Shared Research and Educational Centre

### 6. . Competencies of the student, formed as a result of passing research practice.

#### 7. As a result of the internship, the student must acquire the following practical skills, abilities, universal, general professional and professional competencies.

As a result of the internship, the student must acquire the following practical skills, abilities, universal, general professional and professional competencies:

- УК-4: готовность использовать современные методы и технологии научной коммуникации на государственном и иностранном языках, в том числе готовность к коммуникации в устной и письменной формах на русском и иностранном языках для решения задач профессиональной деятельности, владение иноязычной коммуникативной компетенцией в официально-деловой, учебно-профессиональной, научной, социокультурной, повседневно-бытовой сферах иноязычного общения;
- ПК-1: способность и готовность к научным исследованиям по разработке и созданию инновационных ЛС, в том числе на основе лекарственного растительного сырья

As a result of mastering the program of research practice, the student must:

#### **Know:**

- methods of searching for literary sources, patents on the topic being developed with the aim of using them when writing the dissertation;
- methods of research and experimental work;
- methods of analysis and processing of experimental data;
- basic technological and analytical techniques used in drug development.
- requirements for the design of scientific and technical documentation.

**Be able to** conduct, plan and implement scientific experiments, as well as work and interpret the results obtained in the field of drug development.

**Have** research skills, systematic work and analysis of scientific data in the field of drug development.



## 8. Structure and content of the program

The total workload of the practice for each profile is 6 credit points, 216 hours.

№	Type of study	academic hours	Postgraduate course	Общая трудоёмкость (зачётных единиц)
1.	Independent work	113	1	6 (216 academic hours)
2.	Total labor intensity (academic hours)	113	1	

*Activities of postgraduate students during the program:*

**1 The first stage (preparatory):** *The scientific supervisors introduce the postgraduate students to the goals, objectives and content of research practice. In addition, graduate students receive advice on paperwork. The individual assignment is prepared by the graduates in agreement with the head of practice (scientific advisor).*

**2 The second stage (main):**

- Conducting experiential research, the results of which are consistent with theoretical development.
- Publication of scientific articles of a graduate student on the topic of scientific research in journals included in the Scopus databases and Web of Science also in the list of VAK and RSCI, conference abstracts in the amount approved by the Higher Certification Commission of the Russian Federation and the University.
- Preparation and assessment of the project of the final qualifying work (Ph.D. thesis).
- The postgraduate student is ready to proceed with the registration of the final qualifying work and its defense within the framework of the block "State final attestation".

*At the third (final) stage* the results of the practice should be summarized. Postgraduate students summarize their research experience in reports. Teachers analyse the activities of postgraduate students, note the difficulties they have encountered and the most successful solutions to the tasks in the course of the classes. The overall mark for research practice consists of the degree of participation of the postgraduate student in the Shared Research and Educational Centre and the university, the level of research on the dissertation and documentation.

## 9. Educational, research and scientific-production technologies used by the postgraduate student:

- Multimedia technologies;
- chemical, physicochemical methods of drug research.

## 10. Educational and methodological support of independent work of graduate students in research practice

The independent work of a postgraduate student is carried out in accordance with an individual plan developed by a postgraduate student and a scientific advisor, approved in accordance with the work of the centre.

Postgraduate students in their work use literary sources on the topic of their own scientific research. At the same time, the graduate student is obliged to familiarize himself with the works recommended to him by his scientific advisor, scientists working at the university, as well as in other scientific and educational organizations. It is mandatory for a graduate student to familiarize himself with the works on the topic of his research, published in international publications, available through international (including electronic) library systems, access to which is provided by the University.

The postgraduate student conducts research independently, avoiding plagiarism.

Practice requires acquaintance with the work of the dissertation councils: study of normative materials regulating their activities; Familiarity with the rules of registration and

presentation for the defense of the dissertation.

### 9. Educational, methodological and informational support for research practice

Main literature	
American Chemical Society (ACS) - electronic journals of the American Chemical Society	<a href="http://pubs.acs.org/">http://pubs.acs.org/</a>
Cambridge Journals	<a href="https://www.cambridge.org/core">https://www.cambridge.org/core</a>
Electronic resources Springer	<a href="https://rd.springer.com/">https://rd.springer.com/</a>
additional literature	
PROQUEST DISSERTATIONS AND THESES GLOBAL	<a href="http://search.proquest.com/">http://search.proquest.com/</a>
Reaxys, Reaxys Medicinal Chemistry	<a href="https://www.reaxys.com/">https://www.reaxys.com/</a>

### 11. Material and technical support of research practice

Equipped laboratories of the Shared Research and Educational Centre: rooms number: 117, 118, 119, 123, 125, 130, 133, 1.07, 1.10, 1.11, 1.16.

№ п/п	Name of discipline (module) practice in accordance with the curriculum	Name of special * rooms and rooms for independent work	Equipment of special rooms and premises for independent work
1	Scientific Research practice	Classrooms for conducting laboratory-type lessons № 1.16, 117, 118, 104, 105, 106, 107, 108, 109, 110, 111, 114, 115, 117, 118, 119, 125, 130, 133 117198, Moscow, st. Miklukho-Maklaya, 10, building 2. Classrooms for conducting laboratory-type classes № 332, 333, 334.	A set of specialized furniture; multimedia projector. A set of specialized furniture; multimedia projector. UV / VIS spectrophotometer Varian "Cary 100"; Polarimeter automatic mod. Schmidt + Haensch "POLARTRONIC NHZ-8"; Universal laboratory titrator METROHM "848 TITRINO plus"; Universal laboratory titrator Mettler Toledo "DL-22"; NMR spectrometer Jeol "JNM-ECA 600"; Confocal microscope based on Nikon "Eclipse 90i"; Electronic scanning microscope JEOL "JSM-6490LV"; Hybrid quadrupole-time-of-flight mass spectrometer Bruker "microTOF-Q II", Liquid chromatography-mass spectrometer JMS-T100LP-DART 100; Atomic absorption spectrometer Varian "AA 240G" with graphite furnace GTA 120; FT-IR spectrometer mod. Varian "FT-IR 3100 Excalibur Series"; FT-IR spectrometer BRUKER mod. "MPA"; Optical emission spectrometer Varian

scientific research in the field of quality control, validation and standardization of drugs using modern physicochemical methods of analysis in accordance with international standards (PC-1)	Participation in the conference. Writing articles. Preparation of final qualifying work Practice report. Plagiarism Check Results The number of articles published.	The number of presentations of the postgraduate student in conferences, including the submission of abstracts. Preparation final qualifying work
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creator:

Ph.D., Associate Professor





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Lazar Simon

signature

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