

Документ подписан простой электронной подписью
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**Federal State Autonomous Educational Institution Higher Education
"Peoples' Friendship University of Russia"**

Medical Institute

(name of the main educational unit (PMO) - the developer of the postgraduate program)

Department of General Pharmaceutical and Biomedical Technology

(name of the basic educational unit (BUE) - the developer of the postgraduate program)

WORKING PROGRAM OF THE DISCIPLINE

Research Methodology

(name of discipline/module)

Scientific specialty:

3.4.1. Industrial Pharmacy and Drug Technology

(code and name of scientific specialty)

The development of the discipline is carried out as part of the implementation of the postgraduate program:

Drug Technology: Biopharmacy / Технология получения лекарств: Биофармация

(name of postgraduate program)

1. THE PURPOSE OF MASTERING THE DISCIPLINE

Training of a specialist who has fundamental theoretical knowledge and practical skills necessary for conducting scientific work, who is able to successfully and timely complete a dissertation research for the degree of candidate of pharmaceutical sciences.

2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

As a result of studying the discipline, the graduate student must:

know:

- methods of analysis and evaluation of modern scientific achievements;
- research methods;
- features of presenting the results of scientific activity in writing when working in Russian and international teams;
- principles of analysis and generalization of research results, modern methods of statistical processing of research results, methods of public presentation of scientific data;
- modern methods of collecting and processing information in the field of pharmaceutical technology and related fields, corresponding to the tasks set for research, forms of public presentation of scientific data.

be able to:

- carry out research work in the field of pharmaceutical technology (technology for obtaining drugs), which is important for the practice of industrial pharmacy;
- analyze alternative options for solving research and technological problems;
- analyze and summarize the results of scientific research, present them in the form of scientific publications and reports;
- to systematize and summarize the experience of scientific research in the field of pharmacy.

own:

- skills of critical analysis and evaluation of modern scientific achievements;
- skills and technologies for planning professional activities in the field of scientific research;
- skills of independent conducting applied scientific research in the field of pharmacy;
- skills of introducing the results of modern scientific research into pharmaceutical technology, organization and interaction of the scientific school and industrial production;
- methods of planning, organizing and conducting scientific research, allowing to obtain new scientific facts that are significant for the pharmaceutical industry;
- skills of analysis, generalization and presentation of the results of scientific research, public presentation of the results of the research.

3. VOLUME OF DISCIPLINE AND TYPES OF EDUCATIONAL WORK

The total labor intensity of the discipline "Research Methodology" is 3 credits.

Table 4.1. Types of educational work by periods of mastering the postgraduate program

Type of study work	TOTAL,ac.h.	Well			
		1	2	3	

Type of study work	TOTAL,ac.h.	Well			
		1	2	3	
<i>Contact work, acc.</i>	18	18			
including:					
Lectures (LC)	12	12			
Laboratory work (LR)					
Practical/seminar sessions (SZ)	6	6			
<i>Independent work of students, acc.</i>	18	18			
<i>Control (exam), acc.</i>	36	36			
The total complexity of the discipline	ac.h.	72	72		
	credit	2	2		

5. CONTENT OF THE DISCIPLINE

Table 5.1. The content of the discipline (module) by type of educational work

Name of the discipline section	Contents of the section (topic)	Type of study work
Section 1. Methodological foundations of scientific knowledge	Topic 1.1. Science as a specific form of activity.	L
	Topic 1.2. Method of scientific knowledge: essence, content, main characteristics.	L, S
Section 2 Ethical aspects of scientific research	Topic 2.1. Biomedical Research. Ethical aspects of scientific research.	L, S
Section 3 Methodology of dissertation research.	Topic 3.1. The structure of scientific dissertation research.	L
	Topic 3.2. Stages of dissertation research.	L
	Topic 3.3. Requirements for the structure, content and design of the dissertation. Defense of the thesis.	L, S
Section 4 Good Scientific Practice	Topic 4.1. Basic principles of good scientific practice.	L, S
Section 5 Processing and analysis of scientific research results	Topic 5.1. Fundamentals of Biomedical Statistics	L, S
Section 6 Registration of scientific research.	Topic 6.1. Presentation of research results.	L
	Topic 6.2. Principles of writing scientific articles, reports.	L, S

6. LOGISTICS AND TECHNICAL SUPPORT OF THE DISCIPLINE

Table 6.1. Logistics of discipline

Audience type	Audience equipment	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
Teaching laboratory (943)	Audience for laboratory work, individual consultations, current control and intermediate certification equipped with a set of	A set of specialized furniture; hardware: Notebook Lenovo ThinkPad E15-IML; multimedia projector Epson EB-X31, there is

Audience type	Audience equipment	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
	specialized furniture and equipment.	Internet access. Software: Microsoft products (OS, office suite, including MS Office / Office 365, Teams, Skype) list of specialized equipment, etc.
Teaching laboratory (944)	Audience for laboratory work, individual consultations, current control and intermediate certification equipped with a set of specialized furniture and equipment.	A set of specialized furniture; technical means: video projector Epson EMP-S1 sch.1257, laptop Dell Vostro 7500, Internet access. Software: Microsoft products (OS, office suite, including MS Office / Office 365, Teams, Skype) list of specialized equipment, etc.
Teaching laboratory (946)	Audience for laboratory work, individual consultations, current control and intermediate certification equipped with a set of specialized furniture and equipment.	Set of 3 heating mantles for 250, 500 and 1000 ml flasks manufactured by Labtex Set of hydrometers AON-1 GOST 18481-81 Analytical balance I class ViBRA HT 224RCE Moisture Analyzer Vibra MD-83 Ultrasonic cleaner SONOREX DIGITEC DT 156 VH manufactured by Bandelin Bath water laboratory STEGLER WB-6 Dry oven with forced ventilation LOIP LF 120/300-VS1 Box of abacterial air environment for working with crops of bacteriological cultures that do not pose a threat to health operators BAVnp-01- "Laminar-S." Vibrodrive VP-3OT Scales ATILON ATL 120d4-1 analytical germanium Bath water double L N-2LABTEX Heidolph overhead laboratory stirrer with USB interface Hei-TORQUE 400 Precision Vacuum pump Germany Switch for 3 Heidoiph vaporizers Vacuum control unit Heidoiph Vacuum valve Heidoiph AV-50Halogen moisture analyzer 0.02-50

Audience type	Audience equipment	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
		Laborota 4002 control HB/G1. Heidolph programmable rotary evaporator Dish dryer STL 56 by Gerhardt Exhaust cabinet No. 1 IIIB-20
Teaching laboratory (947)	An auditorium for laboratory work, individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and equipment.	ND, orders, GF, GOSTs, scales with weights and electronic, measured laboratory glassware, mortars with pestles, scales with weights and electronic, evaporation cups, small laboratory equipment, heating devices, filters, hydrometers, electric stoves, water and sand baths, laboratory thermostat, mold for pouring out suppositories, pill machines, homogenizer, laboratory stirrer, steam sterilizer GK-10-1- "TZMOI" Box of abacterial air environment BAVnp-01-”Laminar-S”-1.2 Refractometer IRF-454 Bath water laboratory 8-seater H 19 V Hydro Refractometer with backlight and additional scale IRF-454 B2M Refrigerator pharmaceutical Pozis XB-140-1 Exhaust cabinet No. 2 ShV-202 Scales electronic laboratory Adam NSV-302 Cap crimping machine POK-1 Dish dryer STL 56 by Gerhardt Bath water laboratory four-seater LT-4 production Tare scales on column VA-4M Water bath - thermostat WB-4MS Dish dryer STL 56 by Gerhardt Analytical balance I class ViBRA HT 224RCE Water bath - thermostat WB-4MS Exhaust cabinet No. 2.ShV-202
For independent work of students (926)	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 the EIOS.	

7. EDUCATIONAL-METHODOLOGICAL AND INFORMATION SUPPORT OF THE DISCIPLINE

a) basic literature

1. State Pharmacopoeia of Russia. — XIV Edition.
2. British Pharmacopoeia.
3. European Pharmacopoeia. — 3333 p.
4. The International Pharmacopoeia. — WHO Geneva. — V. 1—4.
5. The Japanese Pharmacopoeia. — 1788 p.

b) Additional reading

1. Methodology of scientific research [Electronic Resource]: Textbook/N.A. Slesarenko [et al.]; Ed. N.A. Slesarenko. - St. Petersburg.: Lan Publishing House, 2017. - 268 p. - (Textbooks for universities. Special Literature). - ISBN 978-5-8114-2183-1.
2. Stepin V.S. Philosophy and Methodology of Science. Selected/V.S. Stepin. - M.: Academic Project: Alma Mater, 2015. - 716 p. - (Philosophical Technologies: Selected Philosophical Writings). - ISBN 978-5-8291-1715-3:610.00.

Resources of the information and telecommunications network "Internet":

1. RUDN ELS and third-party ELS, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System - RUDN EBS <http://lib.rudn.ru/MegaPro/Web>
- ELS "University Library Online" <http://www.biblioclub.ru>
- EBS Yurayt <http://www.biblio-online.ru>
- EBS "Student Advisor" www.studentlibrary.ru
- EBS "Lan" <http://e.lanbook.com/>
- EBS "Trinity Bridge"

2. Databases and search engines:

- electronic fund of legal and normative-technical documentation <http://docs.cntd.ru/>

- Yandex search engine <https://www.yandex.ru/>
- Google search engine <https://www.google.ru/>
- abstract database SCOPUS <http://www.elsevierscience.ru/products/scopus/>

Educational and methodological materials for independent work of students in the course of mastering the discipline/module:*

1. A course of lectures on the discipline "Methodology of scientific research".
2. Guidelines for the implementation of practical tasks in the discipline "Methodology of scientific research".
3. Guidelines for independent work on the discipline "Methodology of scientific research".

* - all educational and methodological materials for independent work of students are placed in accordance with the current procedure on the page of the discipline in TUIS!

8. EVALUATION MATERIALS AND SCORE-RATING SYSTEM FOR ASSESSING THE LEVEL OF FORMATION OF COMPETENCES IN THE DISCIPLINE

Evaluation materials and a point-rating system for assessing the development of the discipline presented in the Appendix to this Work Program of the discipline.

* - OM and BRS are formed on the basis of the requirements of the relevant local normative act of the Peoples' Friendship University of Russia.

DEVELOPERS:

Head Department of General
Pharmaceutical and Biomedical
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Position, BUP


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