

Approved by
Deputy Rector for Academic Affairs

_____ E.V. Konovalova
15 June 2023 Record No. 5

Practical Training in Scientific Research Work Skills and Experience

Qualification **General Practitioner**

Curriculum s310501-ЛечДелоИн-23-1.pli.xml
Specialty 31.05.01 Medicine

Department **Internal Diseases**

Form of education **Full-time**

Total (in credits) 4

Total academic hours 144
including:
 Contact 64
 Self-study 80

Control:
Credit, 3rd, 4th term

Academic year (Term)	2 (2/3)		2 (2/4)		Total	
	Weeks		Weeks			
Types of classes	Cur	Syl	Cur	Syl	Cur	Syl
Lectures	-	-	-	-	-	-
Practical	32	32	32	32	64	64
Self-	40	40	40	40	80	80
Total	72	72	72	72	144	144

The Syllabus is compiled by:

Doctor of Medicine, Professor Kovalenko L.V. _____
PhD in Biological Sciences, Senior Lecturer, Kavushevskaya N.S. _____

The Syllabus

Practical Training in Scientific Research Work Skills and Experience

Developed in accordance with Federal State
Educational Standard:

Federal State Educational Standard of higher education in the specialty 31.05.01 General medicine
(Order of the Ministry of Education and Science of the Russian Federation on August 12, 2020 No.
988)

Based on the Curriculum:

31.05.01 GENERAL MEDICINE

Specialization: General Medicine

The Syllabus was approved by the department

Internal Diseases

Head of Department, Doctor of Medicine, Professor Kovalenko L.V.

Chairman of Academic and Scientific Council, PhD in Medical Sciences (Medicine), Vasilyeva E. A.

1. AIM OF THE PRACTICE

The **aim** of the practice is to study the theoretical and methodological foundations of scientific research, to obtain theoretical knowledge, skills and abilities to work with scientometric bases, scientific literature, familiarization with publishing activities; familiarization with the requirements for research work; the procedure for their development, registration and protection, as well as generalization of experience in solving creative problems; and to ensure the unity of educational, scientific and innovative processes with the formation and development of creative abilities, to improve the professional and creative training of students, to improve the forms of involvement in scientific research, scientific and technical, publication and rationalization activities.

2. OBJECTIVES OF THE PRACTICE

1. To create favorable conditions for the development and functioning of various forms of scientific creativity of students, based on domestic and foreign experience, the results of scientific and scientific and technical developments;
2. To promote the comprehensive development of the student's personality, the formation of his objective self-esteem, the acquisition of skills of work in research teams, involvement in research and innovation;
3. To develop the ability to carry out critical analysis based on a systems approach, as well as the skill of developing an action strategy; formulate and solve problems, define a goal and draw up a research plan;
4. To form the ability to solve standard problems of professional activity using information, bibliographic resources, biomedical terminology, information and communication technologies, taking into account the basic requirements of information security;
5. To get acquaintance with the mathematical foundations of medical statistics;
6. To form the student's basic skills and abilities to work with scientific information, familiarization with the ethical principles of this procedure;
7. To mastering the skills of preparing an academic text, reports on the results of research work; preparation and application of scientific, research and production, design, organizational, management and regulatory documentation in the health care system;
8. To form the basic skills and abilities to describe the research results based on the principles of evidence-based medicine and readiness for public presentation.

3. COURSE OVERVIEW

Course code (in curriculum)	B2.O.01.02(Y)
	Assumed background (courses and practices):
B1.O.01.01	History (History of Russia, World History)
B1.O.01.03	Life Safety
B1.O.02.01	Foreign Language (Russian)
B1.O.01.10	History of Medicine
B1.O.01.11	Physics, Mathematics
B1.O.01.12	Chemistry
B1.O.02	Foreign languages module
B1.O.02.02	Latin Language
B1.O.03.01	Physical Education and Sports
B1.O.04.01	Introduction to Speciality. Ethics and Deontology (Bioethics)
B1.O.04.02	Professional Image
B1.O.04.04	Biology
B1.O.04.05	Medical Informatics
B1.O.04.08	Anatomy
B1.O.04.09	Histology, Embryology, Cytology
B1.O.04.51	Nursing. Theoretical Bases of Studying Patient Care
	Post-requisite courses and practice:
B1.O.04.17	Public Health and Healthcare. Economy of Public Healthcare
B1.O.04.20	Epidemiology
B1.O.04.21	Infectious Diseases
B1.O.04.03	Basics of Project Management in Healthcare

4. PLACE AND PERIOD OF PRACTICE

Semester	Place	Department	Period
III	Surgut District Clinical Hospital	Department, library	September-May
	Clinical City Hospital # 1		September-May
	Surgut District Cardiology Dispensary		September-May
IV	City Ambulance Station		September-May
	Divisional Clinical Hospital (Surgut station, Russian		September-May
	Outside Surgut (based on agreements and letters of		September-May

5. Mode of practice – stationary and outside
6. Form of practice – continuous
7. RESULTS UPON COMPLETION OF THE PRACTICE
7.1 Competences upon completion of the practice
Universal Competences:
UC-1 Able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy
UC-1.1 Analyzes the task highlighting its basic components
UC-1.2 Defines and ranks the information required to solve a given problem
UC-1.3 Searches for information to solve the problem for various types of requests
UC-4.1 Chooses the style of communication in the State language of the Russian Federation in accordance with the purpose and conditions of communication
UC-4.2 Presents the results of academic activity in the State language of the Russian Federation and a foreign language (oral and written business communication)
UC-5.3 Upholds the principles of tolerance and respect of fundamental human and civil rights in personal and social communication in order to solve professional tasks and enhance social integration
UC-6.1 Determines the tasks of self-development and professional growth, distributes them into long-, medium- and short-term with the relevance and determination of the necessary resources for their implementation
General Professional Competences:
GPC-10 Able to solve standard cases of professional activity using information, bibliographic resources, biomedical terminology, information and communication technologies taking into account the basic requirements of information security
GPC-10.1 Knows the mathematical basics of medical statistics to solve his professional tasks
GPC-10.2 Able to assess the quality of medical information obtained from open sources (portals and orders of the Ministry of Health of the Russian Federation; orders of regional health authorities; information, bibliographic resources, biomedical information and communication database), taking into account evidence and information security requirements
GPC-11 Able to prepare and apply scientific, research and production, design, organizational, management and regulatory documentation in the health care system
GPC-11.1 Analyzes the information received, prepares and applies research and production, design, organizational, managerial and regulatory documentation in the health care system
GPC-11.2 Participates in scientific research and is willing to participate in the implementation of new methods and techniques aimed at protecting the health of citizens
GPC-11.3 Demonstrates readiness for analysis and public presentation of medical information on the grounds of evidence-based medicine
Professional Competences:
PC-9 Capable of analyzing and publicly presenting medical information based on evidence-based medicine
PC-9.1 Analyzes medical information
PC-9.2 Provides evidence-based health information
UC-10/1 Understands the basic principles of the functioning of the economy and economic development, goals, forms of state participation in the economy
UC-11.3 Able to use mathematical methods and models to solve professional problems and develop new approaches
7.2 By the end of the course students must:
Know:
- the logic of the organization of scientific research;
- problems and specifics of scientific research in the field of medicine;
- methods of empirical research;
- methods of quantitative analysis and qualitative interpretation of scientific data;
- ways of presenting scientific facts, recorded in research;
- rules for the design of a scientific text;
Be able to:
- isolate and substantiate the problem to be investigated;
- independently determine the tasks and plan of research activities, taking into account its purpose;

	- choose the necessary research methods, modify existing ones, taking into account the research tasks and the rules for creating diagnostic tools;
	- develop a program of theoretical and empirical research;
	- carry out bibliographic work using modern information technologies;
	- to present and interpret the results of research activities taking into account a specific addressee
	Have skills of:
	- the professional language of the subject area of knowledge;
	- modern methods of searching and processing scientific information;
	- methods of design and presentation of the results of research activities
	- methods of statistical data processing

8. STRUCTURE AND CONTENTS OF PRACTICE

The academic load of the Practical Training and scientific research work is 72 hours, 2 credits, 35 weeks

Class Code	Topics /Class type	Term / Academic year	Types of task and labor intensity (in hours)			Competences	Notes
			Lec	Pr	Self-study		
1	Preparatory stage: briefing on safety precautions, fire safety, labor protection, internal regulations of the enterprise	3	0	8	8	UC-1.1;1.2;1.3; 4.2; 6.1; GPC-10.1; 10.2; 11.1; 11.2; 11.3; PC-9.1; 9.2	1; training log
2	Organization of student research work. Science concept. Management in science.	3		6	8	UC-1.1; 1.2; 1.3; 6.1	1; practice diary
3	Information search. Bibliographic information; bibliography, purpose	3		6	8	UC-1.1; 1.2; 1.3; 6.1	1; practice diary
4	Scientific publication: forms, structure, writing	3		6	8	UC-1.1; 1.2; 1.3; 4.2; 6.1	Practice diary
5	Fundamentals of innovation: protection of scientific research, types of protection titles, types of intellectual property (invention, utility model and computer program)	3		6	8	UC-1.1; 1.2; 1.3; 4.2; 6.1; GPC-10.2; 11.1	Practice diary
6	Introduction to the basics of medical statistics	4		6	8	GPC-10.1; 10.2; PC-9.1; 9.2	Practice diary
7	Data processing: types, kinds, description, distribution, transformations	4		6	8	GPC-10.1; 10.2; PC-9.1; 9.2	Practice diary
8	Hypothesis testing. Basic techniques for data analysis.	4		6	8	GPC-10.1; 10.2; PC-9.1; 9.2	Practice diary

9	Systematization and analysis of primary data obtained during the study using statistical methods. Analysis and description of the results obtained during the study based on statistics, literature data, legal documents	4		6	8	GPC-10.1; 10.2; 11.1; 11.2; 11.3; PC-9.1; 9.2	Practice diary
10	Preparation and execution of research materials for publication (presentation)	4		6	0	GPC-10.1; 10.2; 11.1; 11.2; 11.3; PC-9.1; 9.2	Practice diary
11	Practice test Practice report preparation	4		2	0	UC-1.1; 1.2; 1.3; 4.2; 6.1; GPC-10.1; 10.2; 11.1; 11.2; 11.3; PC-9.1; 9.2	Practice diary; practice report
12	Total			64	40		144

9. Form of attestation of educational practice for research work (obtaining primary skills in research work):

Educational practice is stationary and carried out in the form of lectures, practical classes and independent work.

In the practice diary (workbook) students fill out a report on the work performed weekly, which is the main form of reporting on research work.

The report on educational practice on research work (obtaining primary skills in research work) is the main document of the student which reflects the work he performed during the practice, the organizational and technical knowledge and skills he received. The student can later use the materials of the report to prepare publications in the form of abstracts, articles, posters or reports at student scientific conferences.

Control over the implementation of the student's practice program is carried out in the form of current and intermediate certification during which the main results of the work done are assessed.

The evaluation criteria while certifying the results of educational practice are: the relevance of the research topic; correspondence of the content to the topic; depth of study of the material; compliance of the abstract design with standards. To obtain test admission the student must submit the results in the form of a report.

When certifying the results of educational practice, the following is taken into account and evaluated:

- report on the passage of practice and its defense;
- the level of formation of the student's competencies;
- the degree of preparation of the student for independent work;
- the level of theoretical knowledge and practical training of the student;
- knowledge of students on the topic of research and development;
- the student's initiative, shown during the period of internship;
- knowledge of statistical methods of analysis and the basics of research activities;

In the process of passing the intermediate certification, the student must in the form of a report (5–7 minutes) briefly outline the results of his work during the period of practice. When defending practice reports, the scope of the practice program, the correctness of the paperwork, the content of the characteristics-feedback, the correct answers to the questions asked, the ability to analyze the documents attached to the report are taken into account;

Based on the results of the defense a form of control is carried out - a test, which reflects the quality of the submitted report, the level of theoretical and practical training of the student.

10. FUND OF ASSESSMENT TOOLS FOR CURRENT AND INTERMEIDATE EVALUATION ON PRACTICE

Stage I: Formative assessment

The results are assessed in a four-grading scale:

Assessment Criteria	Performance	Grade
The student reveals the full content of the subject theory, is well-informed about the subject, gives the right answers to all of the questions offered.	8–100 %	Excellent
The student demonstrates knowledge on the subjects, may assume some slight inaccuracies.	66–80 %	Good
The student makes significant mistakes, has little knowledge of the material.	46–65 %	Satisfactory
The student cannot represent an answer to the question stated or gives a completely wrong answer, cannot answer properly to the majority of questions, tasks and additional questions.	менее 46 %	Unsatisfactory

Stage II: Midterm assessment (credit) is assessed in a two-grading scale

1. «Passed»;
2. «Failed»

Assessment is based on the results of educational practice carried out according to the reporting documentation: a diary and a report on practice

Grade	Assessment Criteria
passed	A student on time and at a high professional level completed the entire volume of work outlined by the program of a practice. In the course of practical activity he independently determines the goals and leading tasks of research activities, expediently chooses the forms of work and methods of its organization. The reporting documentation is prepared in accordance with the basic requirements and contains all the necessary components.
not passed	A student did not complete the practice program. In the course of independent practical activity he discovers a low level of knowledge in the theory and methodology of research activities, as a result of which he makes mistakes in solving the problems, planning and implementing the corresponding types of research activities. A student does not have a sufficient level of formation of professional skills and personally significant qualities of a future specialist. Based on the results of the practice, the student presented fragmentary reporting materials containing incomplete and unsubstantiated information.

As a result of the practice, parts of the competencies should be formed: UC-1.1; 1.2; 1.3; 4.2; 6.1; GPC-10.1; 10.2; 11.1; 11.2; 11.3; PC-9.1; 9.2.

11. COURSE (MODULE) RESOURCES

11.1. Recommended Literature				
11.1.1. Core				
	Authors	Title	Publisher, year	Quant.
	Dolgushina N.V.	Research Methodology in Clinical Medicine	M., GEOTAR Media, 2016	3
	Greenhalgh T.	How to Read a Paper. The Basics of Evidence-Based Medicine	M., GEOTAR Media, 2019	3
11.1.2. Supplementary				
	Authors	Title	Publish., year	Quantity
	Pescherov G.I.	Methodology of scientific research (study guide)	M., Institute of worldwide civilizations, 2017	3
11.1.3. Guidance papers				
	Authors	Title	Publish., year	Quantity

	Techieva V.Z.	Organization of research activities using modern scientific methods: teaching aid	Vladikavkaz, North Ossetian State Pedagogical Institute, 2016	3
11.2. Internet resources				
Э1	http://medlib.tomsk.ru			
Э2	MEDLINE			
Э3	FreeMedicalJournals			
11.3. Software				
11.3.1.1	Operational system Microsoft, applied programs pack Microsoft Office (including Excel)			
11.3.1.2	Internet access (Wi-Fi)			
11.3.1.3	BIOSTAT			
11.3.1.4	Statistica 6.0			
11.4. Information Referral systems				
6.3.2.1	E-data bases: Consultant Plus (Reliable legal support)			
6.3.2.2	Student Consultant http://www.studmedlib.ru			

11.5. List of technical support tools providing Practical Training in scientific research work

1. All classrooms are equipped with multimedia and other teaching aids that allow the use of simulation technologies, with standard sets of professional models and the results of laboratory and instrumental research in an amount that allows students to master the skills and abilities provided by their professional activities individually. All computers have up-to-date licensed software installed.

2. Clinical bases have premises provided for the provision of medical care to patients, including those related to medical interventions, equipped with specialized equipment and (or) medical devices and consumables in an amount that allows students to master the skills and abilities provided by professional activities.

3. In the central library of SURSU there are premises for independent work of students, equipped with computers with the ability to connect to the Internet and provide access to the electronic information and educational environment of the organization, as well as with access to electronic library systems (electronic library).

4. On the basis of agreements concluded by the university all students are given keys to access the electronic library systems (electronic library) from any device with Internet access.

Use of training aids

1. PCs:

1.1. BIOSTAT software

1.2. Excel (MS Office)

1.3. Statistica 6.0

№	Name of special rooms and rooms for self-study	Equipment of special rooms and rooms for self-study
1	Auditorium number 533 Atrium (Lenin Ave., 1) for independent work 634 Hall of natural science and technical literature (Lenin Ave., 1) for self-study Classroom number 224 for independent work Address: Surgut st. Power engineers -22	Tables - 42; chairs - 60; computers with Internet access - 3; Tables - 45 pcs., Chairs - 45 pcs., Computers with Internet access - 11 pcs. Tables - 14 pcs., Chairs - 28 pcs., Computers with Internet access - 7 pcs.

12. Peculiarities of practice performance by students with disabilities and disabled people

For persons with disabilities, the procedure for passing the internship takes into account the state of health and the requirements of regulatory documents.

- STO-2.6.16-17 "Organization of the educational process for people with disabilities and people with disabilities."

The heads of the departments ensure the choice of places for passing educational practice for people with disabilities and persons with disabilities, taking into account the requirements of accessibility for these students. When determining places for educational and industrial practice, it is necessary to take into account the recommendations, data based on the results of medical and social expertise, contained in the individual rehabilitation program for a disabled person, regarding the recommended conditions and types of work. When sending a disabled person and a student with disabilities to a specialized organization to undergo the practice provided for by the curriculum, the University agrees with the organization (enterprise) the conditions and types of work, taking into account the recommendations of the medical and social expertise and the individual rehabilitation program for the disabled person. If necessary, for internship, special jobs can be created in accordance with the nature of the violations, as well as taking into account the professional type of activity and the nature of the work performed by the disabled student of labor functions. For people with disabilities and people with disabilities, the form and methods of conducting the practice are established taking into account the characteristics of their psychophysical development, individual capabilities and state of health.

The University creates special conditions for people with disabilities and people with disabilities to get the opportunity to master the educational program of higher education in full, while creating special conditions. Special conditions are understood as training conditions for disabled people and people with disabilities, including:

- the use of individual curricula of educational programs, methods of teaching and upbringing,

- special textbooks, teaching aids and didactic materials, special technical teaching aids for collective and individual use,

- providing the services of an assistant (assistant) who provides students with the necessary technical assistance, conducting group and individual correctional classes,

- providing the opportunity to undergo an internship in the building of the University and organizations that have access for disabled people and persons with disabilities to the trainee's workplace and other conditions, without which it is impossible or difficult for people with disabilities and persons with disabilities to undergo an internship.

When determining places of practice for people with disabilities and people with disabilities, the recommendations of the medical and social expertise, reflected in the individual rehabilitation program for a disabled person, regarding the recommended conditions and types of work, should be taken into account.

Application 1

A sample of filling out a diary of educational practice for research work (obtaining primary skills in research work):

Date	Amount of work performed	Manager's signature

**Surgut State University
Medical Institute**

PRACTICE REPORT

Practical Training in Scientific Research Work Skills and Experience

2nd year student _____ groups, specialty: **General Practitioner**

Full name _____

Practice base _____

Terms of practice _____

Total hours: **144 / 4 Credits**

Safety briefing completed " ____ " _____ 20__ years

Head of practice from the Department (full name, position) _____

Actual results achieved (conclusions)

*Completion status
 (brief description)*

List of practical skills mastered by a student during practical training in Scientific Research Work Skills and Experience:

Name of practical skills	Recommended quantity	The actual execution (the multiplicity)
Skills of carrying out literary and informational search, compiling a list of literature on the research problem, design in accordance with GOST	1	
Skills in working with literature, regulations, other sources of information on the topic of research and development (study and critical analysis)	1	
Skills in participating in planning and organizing and conducting scientific research on a topic	1	
Skills of participation in the selection of relevant research methods and techniques that correspond to the goals and objectives of the research	1	
Skills of recruiting research material using general clinical and special research methods in accordance with the student's research topic	1	
Skills in choosing methods for processing the results obtained, skills in mathematical and statistical data processing	1	
Skills of systematization and analysis of primary data obtained during the study using statistical methods	1	
Skills in analyzing and describing the results obtained during the research based on statistics, literature data, legal documents	1	
Skills in the preparation and design of research materials for publication (presentation)	1	

The signature of the head of the practice from " ____ " _____ 20__.

Student _____ / Full name

Scientific supervisor _____ / Full name

Head Department _____ / F.I.

Final assessment on practice: _____

Practice supervisor _____ / _____