

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

Institute of Medicine

Adopted by Academic Council
Of the Institute of Medicine
17.12.2020
protocol № 5



Affirm
First Vice Rector –
Vice Rector for Education
A.V. Dolzhikova
_____ 20__г.

Basic professional studying program of higher education

Direction of training (specialty)

06.06.01 BIOLOGICAL SCIENCES

Approved by the order of the Ministry of Education and Science of Russia Federation 12.09.2013
№ 1061

The programme was designed appropriate to requirements of ES HE RUDN that was affirmed by
rector's decree dated 26.02.2015 № 96

Graduate's qualification: Researcher. Mentor-researcher

The direction of programme (profile, specialty):

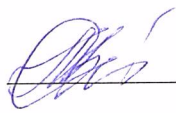
Genetics: molecular basis of human hereditary disease

Form of studying - full-time


A period of programme mastering - 4 years

Information about features of the implementation of the basic studying programme:
Implemented in English

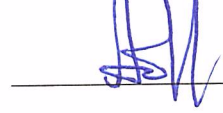
Agreed:
Director of the programme
M.M. Azova


_____ 20__г.

Agreed:
Director of MSSN
T.A. Lobaeva


_____ 20__г.

Agreed:
Director of the Institute
A.Yu. Abramov


_____ 20__г.

Медицинский институт

Принято Ученым советом
Медицинского института
от «17» декабря 2020 г.
протокол № 5



Утверждаю
Первый проректор - проректор по
образовательной деятельности
Должикова А.В.
_____ 20__ г.

**Основная профессиональная образовательная программа
высшего образования**

Направление подготовки

06.06.01 БИОЛОГИЧЕСКИЕ НАУКИ

в соответствии с перечнем, утвержденным приказом Минобрнауки России от 12.09.2013г. № 1061.

Программа разработана в соответствии с требованиями ОС ВО РУДН, утвержденным приказом ректора от 26.02.2015 г. № 96

Квалификация выпускника: Исследователь. Преподаватель-исследователь

Направленность программы (профиль, специализация):

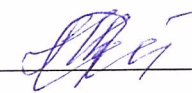
Генетика: молекулярные основы наследственных болезней человека

Форма обучения – очная

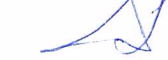
Срок освоения программы в очной форме – 4 года

Сведения об особенностях реализации основной образовательной программы:
реализуется на английском языке


Согласовано:
Руководитель программы
Азова М.М.


_____ 20__ г.

Согласовано:
Председатель МССН
Лобаева Т.А.


_____ 20__ г.

Согласовано:
Руководитель ОУП
Абрамов А.Ю.


_____ 20__ г.

Description of the educational program

1.1. The aims of the program

The mission of the program is training of researchers and lecturer-researchers, able to carry out research activities in biology and teaching activities in higher education in accordance with modern requirements.

The purpose of the program is to form and develop competencies in accordance with professional standards; to form skills required to use the modern biological techniques and procedures.

1.2. Main information

The principal educational program (**06.06.01 «Biological sciences»**) is a training program for highly qualified academic personnel, which corresponds to the second level of higher education.

The program is implemented using a modular approach and includes distance learning.

The area of professional activity of graduates who have mastered the postgraduate program, includes the study of nature and its laws; the use of biological systems for economic and medical purposes; conservation of natural resources.

The subjects of professional activity of graduates who have mastered the postgraduate program are: biological systems of different levels, their functioning and evolution, biological and biomedical technologies; expertizing and monitoring; natural resources assessment and restoration of natural resources.

Types of professional activity which graduates who have mastered the program are prepared to: biological research; teaching biological disciplines in higher education.

Information about implementation of the educational program: it is based on the modular approach; different technologies are used including distance learning.

The fields of training of post-graduate students are:

A) *basic research in Genetics*

B) *teaching:* development of training courses in the field of professional activities (Genetics) using results of their research, preparation of teaching materials, textbooks; supervision of student research.

The place of implementation of the educational program is the Institute of Medicine of RUDN University (Moscow, Miklukho-Maklaya str., 8).

1.3. Implementation features of the educational program

The implementation features of the educational program are:

The total labour intensity of the post-graduate program is 8640 hours, or 240 credits. One credit unit is equal to 36 academic hours. Duration of one hour is 45 minutes of classroom or extra-curricular (independent) work. The maximum amount of the teaching load, which includes all types of training activities, is 54 academic hours per week (1.5 credit units).

The program consists of four parts: Educational disciplines (modules), Practice, Scientific research, and State final Certification.

The labour intensity of Block 1 "Educational disciplines (modules)" is 30 credits (1080 hours). It includes basic and variative components. The basic component which labour intensity is 9 credits (324 hours), includes two disciplines (modules): "Foreign Language" and "History and Philosophy of Science."

The Discipline (module) "Foreign Language", which is usually English, has 5 credits (180 hours). The training is provided by the head of the discipline "Foreign

Language" at the Department of Foreign Languages of the Agrarian Technological Institute.

The Discipline (module) "History and Philosophy of Science" has 4 credits (144 hours). It includes 2 modules: "History of Science (Medicine)" provided by the Department of History of medicine (Institute of Medicine), and "Philosophy of Science", provided by the Department of Ontology and Gnoseology (the Faculty of Humanities and Social Sciences).

The labour intensity of the variative component is 21 credits (756 hours). Included modules are: Methodology of scientific research, Pedagogics of higher education, Discipline of specialization, and elective disciplines.

The Discipline (module) "Methodology of scientific research" has 3 credits (108 hours). The training is provided by the Department of Medical informatics (the Institute of Medicine).

The Discipline (module) "Pedagogics of higher education" has 2 credits (72 hours). The training is provided by the Department of Psychology and Pedagogics (the Philological Faculty).

The Discipline of specialization has 4 credits (144 hours). The training is provided by the Department of Biology and General Genetics (the Institute of Medicine).

The Elective disciplines have 12 credits (432 hours). Students have to select 3 out of all. The training is organized by the head of the discipline chosen by the graduate student on the basis of the corresponding department.

The above-mentioned components of Block 1 should be mastered during the first two years. Block 1 is aimed at development of the theoretical basis required for the professional activity of students.

Verification criteria are established by heads of the disciplines and may include participation in the classroom work, self-study, preparation of a written text (a part of the thesis, essay, analytical notes, research reports, and articles), an oral interview, and other forms of control. Student performance is established with the results of intermediate control.

The labour intensity of Block 2 “Practice” and Block 3 “ Scientific research” is 201 credits (7236 hours). The blocks are also variative components of the Educational program. Scientific research practice and teaching practice are directed by the supervisor of the postgraduate student and provided by the Department of Biology and General Genetics. Scientific research is carried out by the postgraduate student under the guidance of the supervisor during the whole course. Facilities for research are provided by the Department of Biology and General Genetics. The thesis is being prepared during the whole course and ends with a presentation of the completed text of the thesis and the dissertation abstract to the supervisor at the end of the 4th year upon condition that favourable reviews have been given by the supervisor and the expert commission of the Department. The student has to report results of the research in scientific articles. The student has to publish no less than 4 articles in peer-reviewed journals recommended by RUDN University, of which at least two in journals indexed in international databases (Web of Science, Scopus, etc.). Approval of research results is also conducted during different scientific events (conferencies, symposiums, round tables, etc.) and programs of academic mobility.

Block 4 „State Final Certification” is basic and has 9 credits (324 hours). It includes preparing and passing the state examination on degree programm and specialization (3 credits, 108 hours) and preparing and presentation of the research report (6 credits, 216 hours). The state examination is considered as passed if the student has got at least 51 points out of a possible 100. The scientific report is considered as successful if at least 75% of the commission members participating in the evaluation of the report approve the scientific study.

Different technologies including distance learning may be used in implementation of the Educational program.

1.4. Market demand for graduates of the educational program

Analysis of the research and educational activities in the field of biological science shows that the formation and management of the knowledge base of researchers and lecturer-researchers are an important factor for increasing the capability and

competitiveness of educational institutions of higher education, research organizations and innovative companies carrying out scientific and educational activities in this field. Modern educational, research and other organizations are in need of professional researchers and lecturer-researchers able to develop research and teaching activities, with the use of special technologies and skills.

Market demand for graduates of the educational program is determined on the base of analysis of the Russian labour market. All graduates of this program find employment successfully.

1.5. Demands for applicants

An applicant to the educational program should be prepared for activity that requires advanced research and teaching training and has to possess the following competencies:

general cultural competencies: the ability to abstract thinking, analysis, synthesis; readiness to act in unusual situations, to bear the social and ethical responsibility for the taken decisions; rediness to self-development, self-fulfilment; self-realization, the use of creativity;

general professional competencies: readiness for oral and written communication to meet the challenges in professional activity; readiness to lead a team in the field of their professional activities, tolerant perceiving of social, ethnic, religious and cultural differences; ability to make organizational and administrative decisions;

professional competencies: the ability to summarize and estimate the results obtained by other researchers, to identify promising areas, to make a research program; the ability to prove the relevance theoretical and practical significance of the selected research topic; the ability to perform independent research in accordance with the program; the ability to present the results of the research to the academic community in the form of an article or a report; the ability to apply modern methods and techniques of teaching biological disciplines; the ability to develop training plans, programs and appropriate methodological support for the teaching biological disciplines.

1.6. Characteristics of professional activity of graduates:

The area of professional activity of graduates who have mastered the postgraduate program includes:

- the study of nature and its laws;
- the use of biological systems for economic and medical purposes; conservation of natural resource.

Types of professional activity which graduates who have mastered the program are prepared to are determined in accordance with educational standards and labour market demands:

- biological research;
- teaching biological subjects in higher education.

Tasks of professional activity

Tasks of professional activity, which graduates who have mastered the program are prepared to, are determined in accordance with educational standards. Tasks provided by educational standards are supplemented taking into consideration the traditions of the university and the needs of employers.

Tasks in the field of research activity are: basic research in the biological sciences; the development and improvement of mathematical, physical and chemical methods used in genetics; applied biological research.

Tasks in the field of teaching activity are: the development of training courses in genetics with the use of the results of their research, including the preparation of teaching materials, textbooks; teaching genetics; supervision of student research.

1.7. Requirements for the results of the educational program

The educational program is designed to form the following competencies:

Universal competencies (UC)

- **UC-1.** the ability to analyze and evaluate current scientific achievements, generate new ideas and solve the research and practical problems;
- **UC-2.** the ability to design and perform integrated research, including interdisciplinary research, based on a holistic systemic scientific worldview and knowledge in the field of history and philosophy of science;
- **UC-3.** the readiness to participate in the work of Russian and international research teams;
- **UC-4.** the readiness to use modern methods and technologies of scientific communication in the state and foreign languages, including the readiness to communicate verbally and in written form in Russian and foreign languages to solve the problems of professional activity; possession of foreign communicative competence in the formal business, educational, scientific, sociocultural, everyday life spheres of foreign language communication;
- **UC-5.** the ability to plan and tackle tasks of their own professional and personal development.
- GPC – general professional competencies.
- **GPC-1.** the ability to carry out research in the professional field with the use of modern methods of research and information technologies;
- **GPC-2.** the readiness to teach educational programs of higher education.

PC – professional competencies:

- **PC-1.** the ability to understand modern problems of biology and use fundamental biological ideas in professional activities for the goal setting and solution of new problems;
- **PC-2.** the ability to use the basic theories, concepts and principles in the chosen field of activity, the ability to systems thinking;
- **PC-3.** The readiness to conduct the independent analysis of available information, set the goals of the study and propose methods to achieve them;
- **PC-4.** knowledge of the history and methodology of Genetics;

- **PC-5.** the ability to use modern computer technologies in the collection, storage, processing, analysis and transmission of biological information;
- **PC-6.** the ability to present and report the results of scientific research;
- **PC-7.** the ability to apply the methodological principles of design and performance of laboratory research using modern equipment;
- **PC-8.** the knowledge of normative documents regulating the organization and methodology of the research, the ability to ensure safety;
- **PC-9.** the readiness to teach in higher education and manage student research projects, the ability to provide teaching material in oral, written and graphic forms for different students.

1.8. Competency matrix

The competency matrix reflects the relationship between the content of the principal educational program and planned educational outcomes.

Disciplines (modules)		Universal competencies				
		The ability to analyze and evaluate current scientific achievements, generate new ideas and solve the research and practical problems (UC-1)	The ability to design and perform integrated research, including interdisciplinary research, based on a holistic systemic scientific worldview and knowledge in the field of history and philosophy of science (UC-2)	the readiness to participate in the work of Russian and international research teams (UC-3)	the readiness to use modern methods and technologies of scientific communication in the state and foreign languages, including the readiness to communicate verbally and in written form in Russian and foreign languages to solve the problems of professional activity; possession of foreign communicative competence in the formal business, educational, scientific, sociocultural, everyday life spheres of foreign language communication (UC-4)	The ability to plan and tackle tasks of their own professional and personal development (UC-5)
Block 1	Educational disciplines (modules)					
	<i>Basic component</i>					
	Foreign language			+	+	
	History and philosophy of science	+	+			+
Block 1	<i>Variative component</i>					
	Pedagogics of higher education					
	Methodology of scientific research	+	+	+		
	General Genetics	+				
	Methods in Human Genetics	+				
	Human hereditary diseases	+				
	Molecular basis of heredity	+				
	Discipline of a different program (in the frame of subject area)	+				
	English			+	+	

	Russian as a foreign language			+	+	
Block 2	<i>Variative component</i>					
	Teaching practice					
	Scientific research practice					
Block 3	<i>Variative component</i>					
	Scientific research	+	+	+		+

Disciplines (modules)		General professional competencies	
		The ability to carry out research in the professional field with the use of modern methods of research and information technologies (GPC-1)	The readiness to teach basic educational programs of higher education (GPC- 2)
Block 1	Educational disciplines (modules)		
	<i>Basic component</i>		
	Foreign language		
	History and philosophy of science		
Block 1	<i>Variative component</i>		
	Pedagogics of higher education		+
	Methodology of scientific research		
	General Genetics	+	
	Methods in Human Genetics	+	
	Human hereditary diseases	+	
	Molecular basis of heredity	+	
	Discipline of a different program (in the frame of subject area)	+	
	English		
	Russian as a foreign language		
Block 2	<i>Variative component</i>		
	Teaching practice		+
	Scientific research practice	+	
Block 3	<i>Variative component</i>		
	Scientific research	+	

Disciplines (modules)		Professional competencies								
		The ability to understand modern problems of biology and use fundamental biological ideas in professional activities for the goal setting and solution of new problems (PC-1)	the ability to use the basic theories, concepts and principles in the chosen field of activity, the ability to systems thinking (PC-2)	The readiness to conduct the independent analysis of available information, set the goals of the study and propose methods to achieve them (PC-3)	Knowledge of the history and methodology of Genetics (PC-4)	the ability to use modern computer technologies in the collection, storage, processing, analysis and transmission of biological information (PC-5)	the ability to present and report the results of scientific research (PC-6)	the ability to apply the methodological principles of design and performance of laboratory research using modern equipment (PC-7)	the knowledge of normative documents regulating the organization and methodology of the research, the ability to ensure safety (PC-8)	the readiness to teach in higher education and manage student research projects, the ability to provide teaching material in oral, written and graphic forms for different students (PC-9)
Block 1	Educational disciplines (modules)									
	<i>Basic component</i>									
	Foreign language									
	History and philosophy of science									
Block 1	<i>Variative component</i>									
	Pedagogics of higher education									
	Methodology of scientific research					+	+	+	+	+
	General Genetics	+	+		+					
	Methods in Human Genetics	+	+	+						
	Human hereditary diseases	+	+	+						
	Molecular basis of heredity	+	+	+						
	Discipline of a different program (in the frame of subject area)	+	+	+						

	English									
	Russian as a foreign language									
Block 2	<i>Variative component</i>									
	Teaching practice									+
	Scientific research practice			+		+	+	+	+	
Block 3	<i>Variative component</i>									
	Scientific research	+	+	+		+	+	+	+	