Federal State Autonomous Educational Institution
Higher Education "Peoples' Friendship University of Russia"

Agrarian-Technological Institute

(name of the main training unit (PMO)-developer of the EP HE)

WORK PROGRAM OF THE DISCIPLINE

HISTORY AND METHODOLOGY OF SCIENTIFIC AGRONOMY

(name of discipline/module)

Recommended by ISSS for the direction of training/specialty:

35.0 4.04 Agronomy

(code and name of the direction of training/specialty)

The development of the discipline is carried out within the framework of the implementation of the main professional educational program of higher education (EP HE):

Integrated Plant Protection

(name (profile/specialization) ep he)

2022

1. THE PURPOSE OF MASTERING THE DISCIPLINE

The purpose of mastering the discipline "History and Methodology of Scientific Agronomy" is to master the competencies in the field of the history of agronomy as a science and methodology for obtaining scientific knowledge of the production of plant products for human nutrition, animal feeding and raw materials for industry.

2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

Mastering the discipline "**History and Methodology of Scientific Agronomy**" is aimed at forming the following competencies among students:

Table2.1. List of competencies formed in students during the development of the discipline (results of mastering the discipline)

Code	Competence	**Competency Achievement Indicators** (within the framework of this discipline)
MC – 1	Able to carry out search, critical analysis of problem situations on the basis of a systematic approach, to develop an action strategy	UK-1.2. Uses a systematic approach to solve the tasks UK-1.3. Develops a strategy for achieving the set goal as a sequence of steps, anticipating the result of each of them and assessing their impact on the external environment of the planned activity and on the relationships of the participants in this activity.
MC – 5	Able to analyze and take into account the diversity of cultures in the process of intercultural interaction.	UK-5.1. Demonstrates an understanding of the characteristics of different cultures and nations. UK-5.2. Builds social interaction, taking into account the common and special different cultures and religions.
MC – 6	Able to identify and implement the priorities of his own activities and ways to improve it on the basis of self-esteem	UK-6.1. Evaluates its resources and their limits (personal, situational, temporary), optimally uses them for the successful completion of the assigned task. UK-6.2. Plans a professional trajectory, taking into account the peculiarities of both professional and other activities and the requirements of the labor market
OPK – 2	Able to transfer professional knowledge taking into account pedagogical methods.	OPK-2. 1. Transmits professional knowledge in the field of agronomy, explains current problems and trends in its development, modern technologies for the production of crop products

		OPK-2.2. Transfers professional knowledge in the field of agronomy, explains current problems and trends in its development, modern technologies for the production of crop products
PC – 1	It is able to collect, process, analyze and systematize scientific and technical information, domestic and foreign experience in the field of agronomy.	PC-1.1. Carries out a critical analysis of the information received.
PC – 5	It is able to prepare scientific and technical reports, reviews and scientific publications based on the results of the research performed.	PP-5.1. Compiles a research program to study the effectiveness of agricultural practices. PK-5.3. Able to correctly arrange the results obtained

3. MESTO DISCIPLINE IN THE STRUCTURE OF THE OP VO

The discipline "**Crop Production**" refers to *the basic part of block* B1 op VO.

Within the framework of the OP HE, students also master other disciplines and / or practices that contribute to the achievement of the planned results of the development of the discipline "**Crop Production**".

Table 3.1. List of components of the OP HE that contribute to the achievement of the planned results of the discipline

Code	**Competence**	**Previous disciplines/modules, practices***	**Subsequent disciplines/modules, practices***
MC - 1	It is able to carry out a search, critical analysis of problem situations on the basis of a systematic approach, to develop an action strategy.	Information Technologies Instrumental research methods	Plant immunity Coursework "Plant immunity" Organization of integrated plant protection systems Coursework "Organization of integrated plant protection systems" Biotechnology in plant protection Prognosis of pests and diseases Phytosanitary risk analysis Research work Research Practice Pre-diploma practice Preparation and passing of the state exam Graduation qualification work
MC – 5	Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	Professional foreign language	Research Practice Preparation and passing of the state exam Graduation qualification work Professional foreign language (elective)

MC – 6	Able to identify and implement the priorities of his own activities and ways to improve it on the basis of self-esteem		Research work Research Practice Preparation and passing of the state exam Graduation qualification work
OPK – 2	Able to transfer professional knowledge taking into account pedagogical methods.		Fundamentals of Scientific Communication Preparation and passing of the state exam Graduation qualification work
PC – 1	Able to collect, process, analyze and systematize scientific and technical information, domestic and foreign experience in the field of agronomy		Plant immunity Coursework "Plant immunity" Organization of integrated plant protection systems Coursework "Organization of integrated plant protection systems" Biotechnology in plant protection Plant quarantine Prognosis of pests and diseases Phytosanitary risk analysis Research work Research Practice Pre-diploma practice Preparation and passing of the state exam Graduation qualification work
PC – 5	Able to prepare scientific and technical reports, reviews and scientific publications based on the results of the research performed		Molecular methods for diagnosing phytopathogens Research work Research Practice Preparation and passing of the state exam Graduation qualification work

* - is filled in accordance with the competence matrix and the SPMS OP VO

4. SCOPE OF DISCIPLINE AND TYPES OF EDUCATIONAL WORK

The total labor intensity of the discipline "**History and Methodology of Scientific Agronomy**" is **3** credit units.

*Table 4.1. Types of educational work by periods of mastering the EP HE for **full-time** education*

Type of educational work	**TOTAL,** aca.hrs.	**Semester(s)**			
		1			

Contact work, ac.ch.		**51**	**51**			
Including:						
Lectures (**LC**)		17	17			
Laboratory work *(***PR***)*		34	34			
Practical/Seminar Classes (**FPs**)						
Independent work of students, ac.ch.		42	42			
Control (exam /test with grade), ac.ch.		15	15			
Overall labor intensity of the discipline	aca.hrs.	**108**	**108**			
	Hrs.ed.	**3**	**3**			

*Table 4. 2. Types of educational work by periods of mastering the EP HE for **full-time and part-time** education*

Type of educational work		**TOTAL,** aca.hrs.	**Semester(s)**			
			1	**2**		
Contact work, ac.ch.		**26**	**26**			
Including:						
Lectures (**LC**)		13	13			
Laboratory works *(***LR***)*						
Practical/Seminar Classes (**FPs**)		13	13			
Independent work of students, ac.ch.		57	57			
Control (exam /test with grade), ac.ch.		25	25			
Overall labor intensity of the discipline	aca.hrs.	**108**	**108**			
	Hrs.ed.	**3**	**3**			

*Table 4. 3. Types of educational work by periods of mastering the OP HE for **part-time** education*

Type of educational work		**TOTAL,** ac.ch.	**Semester(s)**			
			Winters.	**Years.**		
Contact work, ac.ch.		**30**	**30**			
Including:						
Lectures (**LC**)		10	10			
Laboratory works *(***LR***)*						
Practical/Seminar Classes (**FPs**)		20	20			
Independent work of students, ac.ch.		74	74			
Control (exam /test with grade), ac.ch.		4	4			
Overall labor intensity of the discipline	aca.hrs.	**108**	**108**			
	Hrs.ed.	**3**	**3**			

5. CONTENT OF THE DISCIPLINE

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

Name of the discipline section	**Contents**	**Type of educational work***
Section 1	**Topic 1.1.** The emergence of scientific agronomy as a result of the appeal of natural	**LC**

Origins and stages of development of the theoretical foundations of scientific agronomy.	science to the problems of deterioration of the food supply of the growing urban population.	
	Topic 1.2. Multifactorial experiments and their statistical and technical support. New methods of genetics and selection. The birth of biotechnology and the creation of genetically modified plants.	
Section 2 Methods of system research in agronomy	**Topic 2. 1.** Key concepts, their designation and meaning. Examples of erroneous definitions. Familiarization with logical categories and principles of correct thinking. Inductive and deductive conclusions. The concept of research in statics and dynamics. Methodology of comparative research	**LC, PR**
	Topic 2. 2. Preliminary Research Requirements Examples of organization of preliminary studies of agrochemistry and agrophytocenology in conditions of normalized and directionally oriented heterogeneity.	**LC, PR**
	Topic 2. 3. Methods of economic research in the examination of scientific programs and evaluation of research results. Research programs based on modeling. The concept of computerexperimentation.	**LC, PR**
Section 3 Modern problems in agronomy and the main directions of searching for their solution The concept of a scientific problem and the justification of its methods of solving	**Topic 3. 1.** Modern scientific problems of agriculture. Hypothetical-deductive method of research. Formulation of the scientific (working) hypothesis of research. The concept of the plan and program of research	**LC, PR**
	Topic 3. 2. Methodological features of calculating the effectiveness of the research. Fundamentals of the theory and methodology of scientific and technical creativity. The concept of an invention and the design of an application for an invention. The need to strengthen scientific and technical creativity in agronomy. .	**LC, PR**

* - is filled in only on **full-time** formsof training: *LC - lectures; PR – laboratory work; NW – seminar classes.*

6. MATERIAL AND TECHNICAL SUPPORT OF DISCIPLINE

Table 6.1. Logistics of discipline

Audience type	**Equipping the classroom**	**Specialized educational/laboratory equipment, software and materials for mastering the discipline** (if necessary)
Specialized audience	An auditorium for laboratory work, individual consultations, current control	Set of specialized furniture, Wall screen with electric drive Cactus MotoExpert 150x200cm (CS-PSME-200X150-WT),

Audience type	Equipping the classroom	Specialized educational/laboratory equipment, software and materials for mastering the discipline (if necessary)
	and intermediate certification, equipped with a set of specialized furniture and equipment. (room 334)	Projector BenQ MH550, Microscopey Biomed 4, Mykmed 5, MBS 10, Software: Microsoft products (OS, suite of office applications, including MS Office / Office 365, Teams)
For independent work of students	Auditorium for independent work of students (can be used for laboratory classes and consultations), equipped with a set of specialized furniture (room 342)	Set of specialized furniture, Electric wall screen Cactus MotoExpert 150x200cm (CS-PSME-200X150-WT), Projector BenQ MH550, Software: Microsoft products (OS, office suite, including MS Office / Office 365, Teams)

* - the audience for independent work of students is indicated **NECESSARILY**!

7. EDUCATIONAL, METHODOLOGICAL AND INFORMATION SUPPORT OF THE DISCIPLINE

Main literature:

***Publications*:**

1. Vavilov, P.P. Plant Growing / Vavilov, P.P. I. - M.: Kolos; Edition 2nd, rev. and add., 2019. - 432 c.
2. Posypanov, G.S. Plant Growing: a textbook for universities / G.S. Posypanov [i dr.]; ed. by G.S. Posypanov. - M.: Koloss, 2017. - 612 p.

Electronic and printed full-text materials:

1. Mandel, B.R. Fundamentals of Modern Genetics: A Textbook for Students of Higher Educational Institutions (Bachelor's Degree) / B.R. Mandel. – Moscow; Berlin : Direct-Media, 2016. – 334 p. : ill. – Access mode: by subscription. http://biblioclub.ru/index.php?page=book&id=440752
2. Karmanova, E. P. Practicum on genetics : uchebnoe posobie / E. P. Karmanova, A. E. Bolgov, V. I. Mityutko. — Sankt-Peterburg : Lan', 2018. — 228 p. — ISBN 978-5-8114-2897-7. — Text : electronic // Lan : e-bibliotechnaya sistema. https://e.lanbook.com/book/104872

Further reading:

Electronic and printed full-text materials:

1. V. P. Popov. World crop production. Ed. RUDN UNIVERSITY, MOSCOW, 2007.

2G. V. Ustimenko-Bakumovskiy. Crop production of the tropics and subtropics. Agropromizdat. M., 1989.

2.Crop production. Ed. by G. S. Posypanov. "Kolos". M., 1997.

3.G. V. Korenev et al. Plant growing with the basics of selection and seed production. Agropromizdat. M., 1990

4.V. G. Pavlyukov. Workshop on tropical crop production. Ed. UDN, M., 1988.

5G.G. Gataulina, M.G. Obyedkov. Practicum on crop production. Ed. "Kolos", M., 2000.

Resources of the information and telecommunication network "Internet":

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

- Electronic library system RUDN University – EBS RUDN university http://lib.rudn.ru/MegaPro/Web
- EBS "University Library Online" http://www.biblioclub.ru
- EBS Yurayt http://www. biblio-online. ru
- EBS "Student Consultant" www.studentlibrary.ru
- EBS "Lan" http://e.lanbook.com/

2. Databases and search engines:

- NCBI: https://p.360pubmed.com/pubmed/
- RUDN University Bulletin: access mode from the territory of RUDN University and remotely http://journals.rudn.ru/
- Scientific Library Elibrary.ru: access by IP-addresses of RUDN University at the address: http://www.elibrary.ru/defaultx.asp
- ScienceDirect (ESD), FreedomCollection, Cell Press And Elsevier**.** There is remote access to the database, access by IP-addresses of RUDN University (or remotely by individual login and password).
- Google Scholar **is** a free search engine for full texts of scientific publications of all formats and disciplines. Indexes the full texts of scientific publications. Access mode: https://scholar.google.ru/
- Scopus **is** a scientometric database of the publishing house "Elsevier". Access to the platform is carried out by IP-addresses of RUDN University or remotely. http://www.scopus.com/
- Web of Science. Access to the platform is carried out by IP-addresses of RUDN University or remotely. http://login.webofknowledge.com/

Educational and methodical materials for independent work of students when mastering the discipline / module:*

1. Workbook on the discipline "**History and methodology of scientific agronomy**".
2. Guidelines for students in the development of the discipline "**History and methodology of scientific agronomy**"

* - 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 POINT-RATING SYSTEM FOR ASSESSING THE LEVEL OF FORMATION OF COMPETENCIES IN THE DISCIPLINE

Assessment materials and the point-rating system* for assessing the level of formation of competencies (parts of competencies) based on the results of mastering the discipline "**History and Methodology of Scientific Agronomy**" are presented in the Annex to this Work Program of the discipline.

* - OM and BRS are formed on the basis of the requirements of the relevant local regulatory act of RUDN University.

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