



## 2. CONTENT OF THE EDUCATIONAL PROGRAM

№	Code and name of modules	Total credits by module	№	Name of subject and code	Credits by subjects	Cycle/component
1	<b>ORW – 1</b> Organization of research work	<b>9</b>	1	<b>ORW 701</b> Academic writing	4	UC
			2	<b>ORW 702</b> Methods of scientific research	5	UC
2	<b>CRB – 2</b> Current research in the field of biology	16	1	<b>CRB 701</b> Molecular biology and genetic engineering	6	UC
			2	<b>CRB 702/1</b> Commercialization of research	5	OC
				<b>CRB 702/2</b> Actual problems of modern botany		
			3	<b>CRB 703/1</b> Innovative Technologies in Biology Education and Science Research	5	OC
				<b>CRB 703/2</b> Actual problems of biotechnology and bionanotechnology		
2	<b>PT – 2</b> Professional training	10	1	<b>PT 801</b> Pedagogical practice	10	UC
		10	2	<b>PT7(8)02</b> Research practice	10	UC
		123	3	<b>PT7(8,9) 031</b> Doctoral student research work, including internship and doctoral dissertation DSRW	119	DSRW
			4	Methods of scientific research	2	
			5	Intensive courses	2	
3	<b>FC</b> Final certification	12	6	<b>FE 901</b> Writing and defense a doctoral dissertation	12	FC
<b>TOTAL:</b>		<b>180</b>			<b>180</b>	



## 2.1. DESCRIPTION MODULES AND DISCIPLINES

<b>ORW – 1 Organization of research work</b> <i>Module description:</i> Possesses the skills of differentiation of scientific and informational texts at the academic level in the organization of research work, conducting scientific research, including various research methods related to the subject area of research.							
№	Name of subject and code	Cycle/component	Credits	Subject discription	Teaching methods	LO by EP	Assessment methods
1	<b>ORW 701</b> Academic writing	UC	4	The discipline considers principles and techniques of creating a scientific text, rules creating scientific texts of various genres (scientific, scientific-educational, etc.), creating and editing a scientific text for publication, and features of the academic tradition in a particular field of scientific activity. The discipline forms the skills of structured presentation of their own ideas, the ability to create scientific and scientific-informational texts of various types, taking into account the specifics of academic discourse.	- SMART technology; - collaboration (pair, group) - Individual and joint research works; - discussions; - work with various sources of information (books, lectures, Internet, documents, etc.); - creative works; - case-stady; - presentations	LO 4	written
2	<b>ORW 702</b> Methods of scientific research	UC	5	The discipline "Methods of scientific research", carried out in order to provide the student with the information necessary for effective writing of scientific research work, carries out a comprehensive analysis of various scientific texts, starting with the concept of research. The analysis of research works is carried out, focusing on the writing of their methodology section. The doctoral student is given the opportunity to develop a research plan that he considers appropriate, combining the experience and knowledge gained up to this stage in his field of research. In addition, detailed information is provided on the set of studies that are included in the design of the research work. This contributes to the systematic recording of the doctoral student's research work and	- SMART technology; - collaboration (pair, group) - Individual and joint research works; - discussions; - work with various sources of information (books, lectures, Internet, documents, etc.); - creative works; - case-stady; - presentations	LO 1 LO 2 LO 5 LO 6	written



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				informing about other methods of scientific research. It will also improve knowledge about the information necessary for the course of the research process, such as the use of quantitative, qualitative, mixed research methods, ways of collecting data, research ethics, data analysis.			
<b>CRB – 2</b> Current research in the field of biology <i>Module description:</i> The study of modern research methods in the field of biology is aimed at developing the skills of effective application in solving urgent problems.							
1	<b>CRB 701</b> Molecular biology and genetic engineering	UC	6	Familiarization with fundamental facts, laws and principles of structure and functioning the living cells, as well as with methods and principles of genetic engineering. Study of structure and function of proteins and nucleic acids, principles and methods of genetic engineering and its use in molecular biotechnology and medicine. Unresolved biological problems in terms of molecular biology are also discussed	- SMART technology; - collaboration (pair, group) - Individual and joint research works; - discussions; - work with various sources of information (books, lectures, Internet, documents, etc.); - creative works; - case-study; - presentations	LO 5 LO 8	written
2	<b>CRB 702/1</b> Commercialization of research	OC	5	The aim of the course is to study the theoretical and practical issues of the process of commercialization of research and pedagogical developments in relation to the specifics of the training profile and the field of science.	- SMART technology; - collaboration (pair, group) - Individual and joint research works; - discussions; - work with various sources of information (books,	LO 3 LO 10	written



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					lectures, Internet, documents, etc.); - creative works; - case-study; - presentations		
	<b>CRB 702/2</b> Actual problems of modern botany			It studies plant systematics i.e. floristics and botanical geography. Floristics studies plant communities in a certain territory. Botanical geography studies the features of plant distribution in the World. It also studies and gets to know the vegetation formation processes in historically distant times and in the modern period of time.	-collaboration (pair, group) - Individual and joint research works; - discussions; - work with various sources of information (books, lectures, Internet, documents, etc.); - creative works; - case-study; - presentations	LO 2 LO 7	written
3	<b>CRB 703/1</b> Innovative Technologies in Biology Education and Science Research	OC	5	The use of innovative technologies in the educational and educational process and research, own methods of technology. Introduction of innovative technologies in the learning process, collection and processing of scientific facts, methods of pedagogical research and design and ability to work with databases as well as theoretical justification of research results.	- SMART technology; - collaboration (pair, group) - Individual and joint research works; - discussions; - work with various sources of information (books, lectures, Internet, documents, etc.); - creative works; - case-study; - presentations	LO 9 LO 10	written



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	<b>CRB 703/2</b> Actual problems of biotechnology and bionanotechnology			Phyto-hormonal regulation of plant growth and development. Culture of plant cells and their features. Biotechnology of cells producing metabolites for industry. Cellular technologies in plant breeding. Micro-clonal reproduction of plants. Preservation of plant gene pool in vitro culture. Genetic engineering of plants.	<ul style="list-style-type: none"> <li>- SMART technology;</li> <li>- collaboration (pair, group)</li> <li>- Individual and joint research works;</li> <li>- discussions;</li> <li>- work with various sources of information (books, lectures, Internet, documents, etc.);</li> <li>- creative works;</li> <li>- case-study;</li> <li>- presentations</li> </ul>	LO 8	written
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**PT – 2 Professional training**

*Module description:* Professional training instills in doctoral students the skills of applying theoretical knowledge in pedagogical and research practice. The internship determines the direction and improves the quality of research work, including the implementation of the dissertation.

№	Name of subject and code	Cycle/component	Credits	Subject discription	Teaching methods	LO by EP	Assessment methods
1	<b>PT 801</b> Pedagogical practice	UC	10	Development of scientific and methodological knowledge and compliance with the requirements of the international labor market, creative potential in pedagogical practice; consideration of the main directions and development of highways in the modern education system; - study of the personality of highways.	Educational process		report



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2	PT7(8)02 Research practice	UC	10		Development of scientific and methodological knowledge and compliance with the requirements of the international labor market, creative potential in research pedagogical practice; consideration of the main directions and development of highways in the modern education system; - study of the personality of highways.	Practical work		report
3	PT7(8,9) 031 Doctoral student research work, including internship and doctoral dissertation DSRW	DSRW	3	5	Research work is Carried out aimed at developing the ability of undergraduates to make independent theoretical and practical conclusions. Develops skills of objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into free scientific research. Considers ways of applying scientific knowledge in educational activities, discusses them in the scientific environment.	Practical work		report
	Methods of scientific research		2		<b>Methods of scientific research (intensive course)</b> – in the course of studying the discipline, a doctoral student, using the experience and knowledge accumulated up to this period, depending on his field of study, will be able to develop and draw up a research plan that he considers acceptable, as well as the possibility of choosing a dissertation topic, how to approach the choice of domestic and foreign scientific supervisors. In addition, sufficient information will be given about the types of research contained in the design of the research paper. Thus, the doctoral student will be given the opportunity to systematize the writing of a research paper and get acquainted with other methods of scientific research. Knowledge about the application of quantitative, qualitative, mixed research methods, methods of data collection, research ethics, information necessary for the research process, such as data analysis, will be improved.	Practical work		report
4	PT7(8,9) 031 Doctoral student research work,	DSRW	20	25	Research work is Carried out aimed at developing the ability of undergraduates to make independent	Practical work		report



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	including internship and doctoral dissertation DSRW				theoretical and practical conclusions. Develops skills of objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into free scientific research. Considers ways of applying scientific knowledge in educational activities, discusses them in the scientific environment.			
	Intensive courses		5		<b>Academic writing (intensive course)</b> is aimed at developing the skills of writing various scientific texts (scientific article, report, reviews, literary review, article based on empirical data, etc.), comprehensive mastery of their features and structures. The course covers all the problems that a doctoral student faces in the process of writing an article, starting with the choice of a topic and ending with its publication. In the course of studying the discipline, doctoral students improve such skills as critical thinking, systematization of writing, scientific discourse, critical reading, analysis, evaluation, etc. They get acquainted with the structure and styles of scientific articles in highly rated journals of international level.	Practical work		report
5	Doctoral student research work, including internship and doctoral dissertation DSRW	DSRW	18	20	Research work is Carried out aimed at developing the ability of undergraduates to make independent theoretical and practical conclusions. Develops skills of objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into free scientific research. Considers ways of applying scientific knowledge in educational activities, discusses them in the scientific environment.	Practical work		report
	Intensive course		2		<b>Academic writing (intensive course)</b> is aimed at developing the skills of writing various scientific texts	Practical work		report



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					(scientific article, report, reviews, literary review, article based on empirical data, etc.), comprehensive mastery of their features and structures. The course covers all the problems that a doctoral student faces in the process of writing an article, starting with the choice of a topic and ending with its publication. In the course of studying the discipline, doctoral students improve such skills as critical thinking, systematization of writing, scientific discourse, critical reading, analysis, evaluation, etc. They get acquainted with the structure and styles of scientific articles in highly rated journals of international level.			
6	Doctoral student research work, including internship and doctoral dissertation DSRW	DSRW	23	25	Research work is Carried out aimed at developing the ability of undergraduates to make independent theoretical and practical conclusions. Develops skills of objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into free scientific research. Considers ways of applying scientific knowledge in educational activities, discusses them in the scientific environment.	Practical work		report
	Intensive course		2		<b>Academic writing (intensive course)</b> is aimed at developing the skills of writing various scientific texts (scientific article, report, reviews, literary review, article based on empirical data, etc.), comprehensive mastery of their features and structures. The course covers all the problems that a doctoral student faces in the process of writing an article, starting with the choice of a topic and ending with its publication. In the course of studying the discipline, doctoral students improve such skills as critical thinking, systematization of writing, scientific discourse, critical reading, analysis, evaluation, etc. They get acquainted with the structure	Practical work		report





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					and styles of scientific articles in highly rated journals of international level.			
7	Doctoral student research work, including internship and doctoral dissertation DSRW	DSRW	30		Research work is Carried out aimed at developing the ability of undergraduates to make independent theoretical and practical conclusions. Develops skills of objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into free scientific research. Considers ways of applying scientific knowledge in educational activities, discusses them in the scientific environment.	Practical work		report
8	Doctoral student research work, including internship and doctoral dissertation DSRW	DSRW	18		Research work is Carried out aimed at developing the ability of undergraduates to make independent theoretical and practical conclusions. Develops skills of objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into free scientific research. Considers ways of applying scientific knowledge in educational activities, discusses them in the scientific environment.	Practical work		report
9	<b>Final Certification</b>	FE	12		Writing and defense a doctoral dissertation			