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1. DESCRIPTION OF THE EDUCATIONAL PROGRAMME

The purpose of the educational program: Training of masters of education who possess deep knowledge in the field of geography, carrying out professional pedagogical, scientific and managerial activities based on new ideas and technologies.

1.1 GENERAL INFORMATION ON THE EDUCATIONAL PROGRAMME

Type of educational program	Current
Name of the educational program	7M01506-Geography
Field of education	7M01 Pedagogical science
Training direction	7M015 Training of teachers in natural science subjects
The group of the educational program	M015 Training teachers of Geography
License to engage in educational activities	№ KZ80LAM00004191, issued on May 28, 2025.
Number and Date of Registration/ Update in the Register of EP	Registration number – 7M01500041 The date of registration in the Registry – 26.07.2019 The date of updating the passport of the EP – 16.07.2026
Awarded degree	Master of Education in the educational program "7M01506-Geography"
Accreditation	"ARQA" Independent Agency for Accreditation and Quality Assurance, registration number HE-SA-000263. Validity period of accreditation: 01.06.2022. – 31.05.2027.
Rating of the educational program	2nd place, Independent accreditation and rating Agency (IAAR), 2021
The total amount of academic credits	120 ECTS
Study duration	2 years

1.2 VISION, MISSION, PROGRAM GOAL, VALUES, ATTRIBUTES OF A UNIVERSITY GRADUATE

Vision:

An intelligent platform that develops teachers who are able to manage in a rapidly changing world.

Mission:

Formation of teachers of leaders who are able to create, develop and disseminate advanced knowledge and values in the field of education for the benefit of the country and the world.

Program goal:

The university aims to become a center for innovative teaching, learning and research in education in Central Asia, as well as the development of education in rural schools.

Values:

Integrity, dedication to one's work, caring for others.

University graduate attributes:

- Self-guided learners and reflexive practitioners
- Responsible personalities with moral and ethical values
- Professionals with deep subject knowledge and digital skills
- Creative and critical thinkers and excellent team players and communicators
- Adaptive leaders in teaching and learning
- Diverse, inclusive and for equality of opportunity in society

1.3. JUSTIFICATION OF THE EDUCATIONAL PROGRAMME

The Relevance of the EP.

The relevance of the educational program "7M01506-Geography" is determined by contemporary requirements for training professional specialists. In the modern education system, the content and methodology of geography teaching are undergoing significant transformation influenced by digital modernization, data-driven analysis, and the implementation of innovative learning models. Accordingly, the program is aimed at preparing future teacher-researchers through the integration of the theoretical and methodological foundations of geographical science with pedagogical design and modern educational technologies.

The program develops methodological, research, and digital competencies of master's students through the systematic application of approaches such as student-centered learning, problem-based learning, and evidence-based teaching within the context of pedagogical geography. Elements of lesson study and action research contribute to the scientific enhancement of the educational process and foster the development of reflective teacher-researchers. In addition, mastery of geoinformation technologies and spatial data analysis tools enables the effective use of modern digital forms of geography teaching.

The need of the market.

In the context of transformational processes in the modern labor market, the content of geography education is moving beyond the framework of traditional subject-based instruction toward the integrated application of digital technologies, data-driven analysis, and research-oriented learning models. This trend increases the complexity of professional activity in the field of education and generates growing demand for teacher-researchers who are proficient in contemporary pedagogical approaches, capable of effectively applying geoinformation technologies, and able to design educational processes on a scientific basis.

At the same time, current labor market requirements emphasize the need for specialists possessing not only pedagogical but also research competencies, capable of conducting systematic analysis of educational quality, publishing scientific results, and applying innovative teaching

methods in professional practice. These requirements are closely associated with the transition of educational processes toward data-driven decision-making principles, the development of digital educational environments, and the strengthening of research culture.

Thus, current labor market trends reinforce the professional requirements for graduates of the "7M01506-Geography" educational program and substantiate the objective need for training competitive teacher-researchers with advanced scientific-pedagogical and research competencies who are capable of effectively organizing modern educational processes.

1.4. FEATURES OF THE EDUCATIONAL PROGRAM

The 7M01506-Geography educational program has been developed based on modern national and international approaches in the fields of geographical and pedagogical education. The program provides practice-oriented training aligned with labor market demands and employer requirements.

The program combines fundamental geographical knowledge with psychological-pedagogical and methodological training. Master's students develop analytical thinking, research skills, competencies in spatial data analysis, and professional decision-making abilities.

The educational process incorporates student-centered learning, problem-based learning, project-based and case-based teaching technologies. Professional competencies of teacher-researchers are developed through lesson study, action research, and pedagogical practice.

Particular attention is paid to mastering GIS technologies (ArcGIS, QGIS), digital cartography, data visualization, and distance learning platforms. In addition, the program emphasizes the development of academic writing, evidence-based teaching, and soft skills such as leadership, communication, and teamwork.

Coincidence with similar EP of leading universities in the near and far abroad:

Compared with the corresponding educational program of Lomonosov Moscow State University, the level of content alignment is estimated at 82%. The structural and content-based similarity of the two programs is characterized by a balanced integration of fundamental and applied areas of geography. The "7M01506-Geography" educational program places particular emphasis on the development of digital and quantitative competencies, as well as on mastering geoinformation technologies and data-driven analytical methods.

The content of the "7M01506-Geography" educational program also demonstrates a high level of alignment (78%) with the master's program of University of Szeged. The correspondence is primarily reflected in the areas of geoinformation technologies, spatial analysis, research methodology, and environmental geography.

Academic mobility	1. Nevşehir Hacı Bektaş Veli University (Nevsehir, Republic of Turkey); 2. Niğde Ömer Halisdemir University (Niğde, Republic of Turkey); 3. Gazi University (Ankara, Republic of Turkey); 4. National University of Uzbekistan named after Mirzo Ulugbek (Tashkent, Republic of Uzbekistan); 5. Abai Kazakh National Pedagogical University.

1.5. POTENTIAL DIRECTION AND JOBS OF A GRADUATE

The professional orientation of graduates of the "7M01506-Geography" educational program is defined by the integration of pedagogical, research, and applied areas of geographical science. Graduates are capable of carrying out multidisciplinary professional activities based on proficiency in spatial analysis, geoinformation technologies, research methodology, and modern approaches to

geography teaching. Accordingly, they are qualified to perform professional functions as teachers in secondary and higher education institutions, researchers in scientific research institutes, and specialists in the development of educational content and methodological support.

In addition, graduates are in demand in the fields of public administration, strategic analysis, ecology, and environmental management. They are capable of performing professional functions in ministries and governmental agencies, as well as in regional development and strategic planning structures, participating in geospatial analysis and data-driven decision-making processes. Furthermore, graduates possess competencies in geoecological monitoring, sustainable natural resource management, and the scientific-methodological analysis and implementation of projects aimed at promoting sustainable development principles.

1.6. AREAS OF PROFESSIONAL COMPETENCE

Areas of professional competence 1

- Formation of the ability to acquire fundamental and applied knowledge for conducting pedagogical, scientific, and managerial activities in the field of geography, as well as to effectively apply this knowledge in professional practice.

Areas of professional competence 2

- Development of professional pedagogical activity through the organization of the geography teaching process in educational institutions, conducting classes, assessing learning outcomes, and facilitating pedagogical communication.

Areas of professional competence 3

- Development of the ability to design an outcome-oriented model of geography teaching through planning learning objectives and content, selecting teaching methods and resources, and effectively organizing the educational environment.

Areas of professional competence 4

- Planning and conducting research activities in scientific and research-production institutions; applying methods of data collection, processing, and analysis; interpreting the obtained results and using them to solve scientific and applied problems.

1.7. LEARNING OUTCOMES OF THE EDUCATIONAL PROGRAMME

LO1 – Integrates scientific results into educational content, taking into account the interconnection between science and the educational process, current issues in the history and philosophy of science, the professional foundations of speech communication, and the observance of ethical and legal standards in the use of artificial intelligence under conditions of educational transformation.

LO2 – Applies the theoretical and methodological foundations of the development of pedagogical and psychological sciences, teaching methods based on inclusive principles considering master's with diverse abilities, processes of management and acquisition, and the essence and content of psychological and pedagogical research in professional practice.

LO3 – Presents the structure, methodology, data, and conclusions of the research in accordance with academic standards, while observing ethical norms at all stages of the scientific process.

LO 4 – Constructs a scientific-analytical model explaining the interrelationships between natural and socio-geographical systems and defines a research concept based on the integration of theoretical and methodological foundations of geographical science and paradigms of spatial research.

LO 5 – Designs a digital learning module, an instructional package, and an assessment system based on the principles of digital transformation and pedagogical design in geographical education.

LO 6 – Evaluates the development status of states and regions and models strategic development scenarios based on spatial-analytical interpretation of global and regional geopolitical dynamics.

LO 7 – Interprets structural changes in geographical-economic space and territorial development patterns through systemic analysis and compiles a set of evidence-based strategic solutions for regional planning and governance.

LO 8 – Analyzes the spatial organization of geoecological systems and anthropogenic impacts, constructs an ecological risk assessment model, and proposes sustainable development policy recommendations.

LO 9 – Develops interactive cartographic products and implements geoanalytical research projects based on the integration of geographic information systems and spatial data technologies.

LO 10 – Builds predictive models, performs scenario analysis, and prepares analytical reports assessing the dynamics of natural and socio-economic processes based on the integration of applied geostatistics and spatial modeling methods.

Matrix for correlating EP learning outcomes with graduate attributes

	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9	LO 10
GA1			+	+						+
GA 2	+	+	+							
GA 3				+	+				+	+
GA 4	+	+					+			
GA 5					+	+	+			
GA 6	+	+								

1.8. NORMATIVE REFERENCES

The educational program is developed based on the following legal acts:

1) The State general education standard of postgraduate education. Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2.

2) Professional Standard: for educators (faculty members) of higher and/or postgraduate education institutions. Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated November 20, 2023, No. 591.

3) Professional Standards for educators of educational institutions. Order of the Minister of Education of the Republic of Kazakhstan dated February 24, 2025, No. 31.

2. CONTENTS OF THE EDUCATIONAL PROGRAMME

№	Code and name of modules	Total credits by module	№	Name of subject and code	Credits by subjects	Cycle/component
1	**ISE Integration of science and education**	**19**	1	ISE 51 History and philosophy of science	5	CC UC
			2	ISE 52 Foreign language (professional)	5	CC UC
			3	ISE 53 Pedagogy and Psychology of Higher Education	5	CC UC
			4	ISE 65 Pedagogical practice	4	CC UC
2	**MGS Methodology of Geographical Science and Innovative Technologies in Education**	**15**	1	MGS 51506/1 Planning and organization of scientific research	5	CC OC
				MGS 51506/2 Theoretical and methodological problems of geography		CC OC
			2	MGS 61506/1 Geographical modeling	5	CC OC
				MGS 61506/2 Geoecological marketing		CC OC
			3	MGS 62506/1 Innovative methods in geographical education	5	CC OC
				MGS 62506/2 New concepts for the development of geographical education		CC OC
3	**IRS Improving research skills**	**18**	1	IRS 51/1 Academic research and critical analysis of literature	6	MC UC
			2	IRS 53 Research design and ethical standards	6	MC UC
			3	IRS 55/1 Qualitative and Quantitative Research Methods	6	MC UC
4	**MGG Management of Global Geopolitical, Geoeconomic and Geoecological Processes**	**15**	1	MGG 51506/1 Political Geography and Globalization of the Modern World	5	MC OC
				MGG 51506/2 Political geography with geopolitics bases		MC OC
			2	MGG 61506/1 Geo-economic aspects of the strategic development of the region	5	MC OC
				MGG 61506/2 Regional development, planning and management		MC OC
			3	MGG 62506/1 World economy and international relations	5	MC OC

				MGG 62506/2 Geographical problems of management and forecast in environmental management		
5	**GTS Geoinforma-tion Technologies and Spatial Data Analysis**	**15**	1	MGS 52506/1 Cartographic support of scientific research	5	MC OC
				MGS 52506/2 Environmental management in the context of globalization		MC OC
			2	GTS 61506/1 Web mapping	5	MC OC
				GTS 61506/2 Geoinformation technologies in geographical research		MC OC
			3	GTS 62506/1 Applied Geostatistics	5	MC OC
				GTS 62506/2 Statistics of environment		MC OC
6	**RW Research work**	**30**	1	RW 5(6)10 Research practice	6	MC UC
			2	RW 5(6)2(1-4) Undergraduate research work, including internships and the implementation of a Master's thesis	24	MSRW
7	**FE Final examination**	**8**	1	FE 610 Registration and defense of the Master's thesis (RDMT)	8	FC
	Total:	**120**			**120**	

2.1. INFORMATION ABOUT MODULES AND DISCIPLINES

ISE Integration of science and education

Module description: The module is aimed at exploring the interconnection between science and education. It covers key aspects of the history and philosophy of science, the specifics of professional foreign language training, the principles of higher education pedagogy, as well as the fundamentals of management psychology. Masters gain a comprehensive understanding of the influence of scientific knowledge on educational practices, as well as the application of these integrated fields in academic and professional settings. The module develops master's critical thinking skills, academic communication, and the ability to implement interdisciplinary concepts in practical activities.

№	Name of subject and code	Cycle/ component	Credits	Subject discruption	Teaching methods	LO by EP	Assessment methods
1	ISE 51 History and philosophy of science	CC UC	5	The discipline "History and Philosophy of Science" provides master's students with an understanding of the evolution of thought in the context of the development of the scientific method. Using critical thinking and comparative analysis skills, master's students analyze key philosophical concepts and their impact on scientific discoveries. They evaluate the influence of ideologies on the formation of scientific paradigms and apply intellectual skills to compare and assess different approaches to knowledge. Through discussion and exploration of historical contexts, master's students develop skills in analyzing and synthesizing information, as well as a deeper understanding of the relationship between philosophy and science.	Lectures and seminar discussions, Case studies, Source analysis, Collaborative research projects	LO 1	Essays, Presentations, Research project
2	ISE 52 Foreign language (professional)	CC UC	5	The discipline is designed to ensure the acquisition of a super-basic standard at a minimum of B1 level and to develop intercultural and communicative competence among graduate students in non-linguistic fields. It expands and improves students' language skills within the scope of their professional activities. The discipline includes the study of specific vocabulary, terminology, and communication strategies relevant to the field of their master's program.	Content and Language Integrated Learning (CLIL) technology, Listening to podcasts and lectures, Reading and analyzing articles	LO 1	Essays, project defense, Compilation of a terminology glossary
3	ISE 53 Pedagogy and Psychology of Higher Education	CC UC	5	The discipline is aimed at providing master's students with in-depth knowledge in the fields of higher education pedagogy and psychology. During the discipline, master's students explore innovative methods for organizing the learning process, designing educational programs, assessing student academic performance, and analyzing the psychological aspects of leadership, including motivation, leadership, communication, and conflict management. Master's students also become familiar with research principles in the field of pedagogy and develop professional skills necessary for a successful career in higher	Case analysis, Situational and problem-based learning (PBL), Collaborative learning and group projects	LO 2	Project defense, Self-assessment and peer assessment, Portfolio

				education. The discipline examines the application of psychological management concepts in educational institutions, helping students develop analytical and decision-making skills in complex situations.			
4	ISE 65 Pedagogical practice	CC UC	4	The master's teaching practicum includes familiarization with teaching methods, main approaches, and techniques of instruction and education, as well as the organization and conduct of classes or events in accordance with the curriculum and program of the higher education institution. An important aspect is working with masters, including adapting materials to their level and needs, as well as improving pedagogical skills and conducting assessment and feedback to ensure evidence-based preparation for future professional activities.	Educational process	LO 2, LO 3	Report

MGS Methodology of Geographical Science and Innovative Technologies in Education

Module description: During the study of the module, master's students comprehensively acquire the theoretical and methodological foundations of geographical science, as well as the principles of planning and organizing scientific research. In addition, they develop skills in geographical modeling, forecasting, and the analysis of geoecological processes. Within the framework of the module, students master modern concepts and innovative methods of geographical education and learn to apply advanced approaches to the effective organization of the educational process in practice. As a result, master's students enhance their competencies in conducting research activities, updating educational content, and utilizing innovative technologies in professional pedagogical practice.

№	Name of subject and code	Cycle/ component	Credits	Subject discruption	Teaching methods	LO by EP	Assessment methods
1	MGS 51506/1 Planning and organization of scientific research	CC OC	5	The discipline is aimed at training master's students with competencies in the field of scientific research. Within the course, master's students study the main stages of scientific research – from topic selection and hypothesis development to the analysis and application of research results. They also become acquainted with the specifics of managing research teams, distributing responsibilities, and collaborating with colleagues and scientific institutions. Particular attention is paid to issues of scientific ethics, legal aspects of research, and standards for handling scientific information. In addition, the discipline develops skills in data analysis, evaluation of scientific results, and presentation of findings in the form of scientific publications and reports.	Research-Based Learning, Design Thinking	LO 1, LO 3	Written

	MGS 51506//2 Theoretical and methodological problems of geography			The course covers the theoretical and methodological foundations of geographical science, concepts of spatial analysis, scientific paradigms, and modern research methods. Master's students study the structure of geographical knowledge and the methodology of integrated analysis of natural and socio-economic processes. Skills in critical thinking, data analysis, interpretation, and evidence-based reasoning are developed. The course fosters the ability to apply theoretical knowledge in practical and research tasks, to systematize and substantiate scientific results. In addition, methodological competencies aimed at developing innovative geographical projects are enhanced.	Problem-Based Learning, Critical Analysis Method	LO4	Written
2	MGS 61506/1 Geographical modeling	CC OC	5	The discipline aims to develop theoretical and practical knowledge among master's students in constructing and applying models that describe spatial and territorial processes. Students master the main methods and approaches of geographical modelling and enhance their skills in applying numerical, analytical, and mathematical tools to study and forecast natural and socio-economic phenomena. Geographic Information Systems (GIS), spatial databases, and modern software tools are used to analyze issues in ecology, urban studies, transport, and land use. In addition, skills in interpreting modelling results, providing scientific justification, and applying them in decision-making processes are further developed.	Spatial Modeling, Simulation-Based Learning	LO 4, LO 10	Written
	MGS 61506/2 Geoecological marketing			The discipline focuses on mastering the theoretical and applied foundations of geoecological marketing. The course examines approaches to assessing the ecological potential of territories considering geoecological factors, the efficient use of natural resources, and environmental risk management. Master's students acquire skills in analyzing geoecological information, conducting marketing-based assessments of environmental conditions, and determining the investment attractiveness of territories. Geographic Information Systems (GIS), spatial data, and modern analytical tools are used for environmental, economic, and marketing decision-making. In addition, approaches to interpreting ecological information and applying it in strategic planning and territorial management processes are examined.	Scenario Analysis, Case Study Method, Foresight Method	LO 7, LO 8	Written

3	MGS 62506/1 Innovative methods in geographical education	CC OC	5	The discipline examines innovative pedagogical technologies and modern educational approaches in teaching geography. The course covers digital educational resources, Geographic Information Systems (GIS), online maps, virtual excursions, interactive platforms, gamification, and project-based learning technologies. Master's students acquire skills in the effective use of information and communication technologies and digital cartographic tools in the educational process. Particular attention is paid to innovative teaching strategies aimed at developing students' critical thinking, research skills, and spatial analysis abilities. During the course, master's students develop skills in designing, developing, and applying innovative learning modules designed for different levels of education.	Project-Based Learning, Flipped Classroom, Blended Learning	LO 2, LO 5	Written
	MGS 62506/2 New concepts for the development of geographical education			The discipline focuses on mastering the theoretical and methodological foundations of modern geographical education and the key concepts of its development. The course examines competency-based pedagogical models, digital technologies, Geographic Information Systems (GIS), as well as interdisciplinary and practice-oriented teaching methods. Master's students study approaches to updating the content of geographical education, designing the learning process, and effectively using digital educational tools. Particular attention is paid to the development of critical and spatial thinking, environmental literacy, and research skills. The course is aimed at enabling students to design and implement innovative geographical education programs that address global challenges and societal needs.	Student-Centered Learning, Design Thinking	LO 1, LO 5	Written

IRS Improving research skills

Module description: The module is designed to provide master's students with a comprehensive understanding of the theoretical foundations and practical strategies for effectively organizing and managing research projects. It aims to equip students with the knowledge and skills necessary for planning, conducting, and disseminating scientific work efficiently.

№	Name of subject and code	Cycle/ component	Credits	Subject discruption	Teaching methods	LO by EP	Assessment methods
1	IRS 51/1 Academic research and critical analysis of literature	MC UC	6	The discipline "Academic Research and Critical Literature Analysis" is aimed at developing graduate students' research culture. Within the course, students acquire skills in searching for information in international databases (Scopus, Web of Science), critically evaluating academic texts, and conducting a literature review. In addition, principles of academic integrity and international citation standards	Critical analysis of scientific articles, Working with academic texts, Preparing a Literature Review, Working with digital	LO 3	Essay/ Project, Research article

				(APA, MLA, etc.) are covered. The course enhances students' ability to conduct independent research and provides a foundation for producing high-quality academic papers and dissertations.	databases (Scopus, Web of Science, Google Scholar), Reflection and self-analysis		
2	IRS 53 Research design and ethical standards	MC UC	6	Master's study various aspects of research design, including formulating research questions, choosing methodology, developing data collection instruments, and planning data analysis procedures. In addition, the course emphasizes the ethical norms and standards governing educational research, such as data confidentiality, the rights and well-being of research participants. Training includes the practical application of acquired knowledge to design and carry out research projects, providing undergraduates with the necessary skills to conduct high-quality and ethical research in the field of education.	Designing a scientific research study, Analyzing ethical dilemmas, Critical analysis of scientific articles, Group discussions and debates, Research assignments, Presentation preparation and defense	LO 3	Essay/ Project
3	IRS 55/1 Qualitative and Quantitative Research Methods	MC UC	6	The aim of the discipline is to equip master's students with the methods of quantitative analysis in the fields of education and social sciences. Master's students learn the basics of planning quantitative research, developing data collection tools (questionnaires, surveys), sampling principles, and statistical data processing methods using modern software. Special emphasis is placed on hypothesis formulation, result interpretation, testing statistical assumptions, and data visualization	Designing a scientific research study, Analyzing ethical dilemmas	LO 3	Essay/ Project

MGG Management of Global Geopolitical, Geoeconomic and Geoecological Processes

Module description: During the study of the module, master's students comprehensively examine the theoretical foundations of modern geopolitical and geoeconomic processes, as well as the role of political geography and geopolitics in the context of globalization. By analyzing the strategic directions of regional development and the geographical aspects of planning and management, students develop the ability to understand the patterns of spatial development. In addition, they study the main trends in the global economy and international relations, as well as issues of management and forecasting in the field of sustainable natural resource use. As a result of completing the module, master's students develop skills in analyzing, evaluating, and making integrated decisions regarding socio-economic and environmental processes at both global and regional levels.

№	Name of subject and code	Cycle/ component	Credits	Subject discruption	Teaching methods	LO by EP	Assessment methods
1	MGG 51506/1 Political Geography and Globalization of the Modern World	MC OC	5	The discipline is aimed at the comprehensive study of the theoretical foundations of political geography and the spatial patterns of political processes in the context of globalization. The course examines geopolitical concepts, the system of international relations, the territorial organization of states, changes in political borders, and international conflicts. It also analyzes the impact of global economic	Geopolitical Simulation, Case Study	LO 6	Written

				and information flows on the world political map, as well as the role of international organizations and non-governmental actors. Master's students acquire skills in geopolitical analysis, political cartography, and spatial analysis tools, enhancing their ability to critically assess global challenges. Particular attention is paid to the interpretation of territorial identity, sovereignty, and sustainable development issues within a geographical context.			
	MGG 51506/2 Political geography with geopolitics bases			The course is aimed at developing a systemic understanding among masters of the spatial organization of political processes, the territorial structure of power, and international relations within a geographical context. It combines theoretical and applied aspects of political geography and geopolitics, enabling masters to analyze global and regional conflicts, the strategic interests of states, and the processes of integration and disintegration on the world map. Special attention is given to contemporary geopolitical challenges, the transformation of the global order, and the role of natural resources, borders, transport corridors, cultural and civilizational factors in shaping political space. The course fosters analytical and strategic thinking skills essential for careers in international relations, national and local governance, territorial planning, as well as research and expert-analytical work.	Scenario Analysis, Geopolitical Simulation	LO 6	Written
2	MGG 61506/1 Geo-economic aspects of the strategic development of the region	MC OC	5	The discipline focuses on the comprehensive study of territorial economic processes and their role in the strategic development of regions. The course examines factors of geo-economic competitiveness, territorial specialization, transport and logistics infrastructure, resource provision, and investment attractiveness. Regional policy, interregional interaction, and strategic planning tools are analyzed using spatial analysis and Geographic Information Systems (GIS). Master's students acquire skills in processing spatial data, developing geo-economic indicator systems, and applying cartographic modeling techniques to regional development processes. In addition, they enhance their abilities in assessing territorial potential and risks, interpreting results of digital spatial analysis, and making evidence-based managerial decisions.	Problem-Based Learning, Foresight Method	LO 6, LO 7	Written
	MGG 61506/2 Regional development,			The discipline focuses on the comprehensive study of the theoretical and methodological foundations of regional development, planning, and governance. The course examines the goals and instruments of	Project-Based Learning, Case Study Method	LO 7	Written

	planning and management			regional policy, territorial planning systems, the interaction between governance levels, and mechanisms for organizing socio-economic space. The discipline emphasizes institutional governance, regional planning procedures, and public regulation mechanisms. Master's students acquire skills in developing territorial planning documents, analyzing regional programs, and justifying managerial decisions. In addition, they enhance their abilities to assess regional development processes and apply effective governance models.			
3	MGG 62506/1 World economy and international relations	MC OC	5	The discipline focuses on the comprehensive study of the main processes and structures of the world economy, as well as the dynamics of the international relations system. The course examines globalization processes, international trade, financial markets, state economic policies, and the activities of international organizations. It also analyzes the interaction between economic and political factors, as well as their role in shaping international cooperation and generating geopolitical conflicts. Particular attention is paid to quantitative analysis of global data, the use of international indicator systems, and modeling of global economic processes. Master's students acquire skills in interpreting global economic data, analyzing international events, and making informed strategic decisions in a rapidly changing world.	Comparative Analysis, Project-Based Learning	LO 6, LO 7	Written
	MGG 62506/2 Geographical problems of management and forecast in environmental management			The discipline is aimed at studying the geographical foundations of natural resource management and forecasting its consequences. The course examines the spatial aspects of natural resource use, environmental risks, sustainable development issues, and territorial planning. Particular attention is given to environmental impact assessment methods, spatial analysis tools (including GIS technologies), and the development of management decisions. The course develops in master's students a systematic understanding of the interaction between nature and society, as well as practical skills in analysis and forecasting in the field of sustainable natural resource management.	Predictive Modeling, Foresight Method	LO 8, LO 10	Written

GTS Geoinformation Technologies and Spatial Data Analysis
Module description: During the study of the module, master's students comprehensively acquire modern geoinformation technologies, web mapping tools, and methods for processing spatial data used in geographical research. In addition, students master the fundamental methods of applied geostatistics and environmental statistics, developing skills in data analysis,

modeling, and interpretation. Within the framework of the module, learners gain practical experience in spatial data visualization, working with geographic databases, and the effective application of geoinformation analysis results in research and management activities. As a result, master's students develop professional competencies in processing and analyzing geographical information, as well as in making evidence-based decisions.							
№	**Name of subject and code**	**Cycle/ component**	**Credits**	**Subject discruption**	**Teaching methods**	**LO by EP**	**Assessment methods**
1	GTS 52506/1 Cartographic support of scientific research	MC OC	5	The discipline is aimed at developing professional competencies among master's students in the field of cartographic support for scientific research activities. The course examines the theoretical and applied foundations of cartographic methods and technologies used in scientific research, as well as approaches to the development, analysis, and interpretation of cartographic materials. Master's students acquire knowledge and practical skills in the use of digital cartography and Geographic Information Systems (GIS), and learn to select effective cartographic tools in accordance with research aims and objectives. Particular attention is paid to the visualization of spatial data, the cartographic presentation of scientific information, and the evidence-based analysis of research results. In addition, the discipline develops practical skills in designing maps, cartodiagrams, and thematic cartographic materials required for the high-quality presentation of scientific research outcomes.	Spatial Analysis, GIS Laboratory Workshop	LO 3, LO 4, LO 9	Tests, Portfolio, Presentations, Project
	GTS 52506/2 Environmental management in the context of globalization			The course explores the specifics of environmental management in the context of globalization and interdependence among countries. It examines global environmental challenges, international norms, and sustainable development strategies. Special emphasis is placed on integrating environmental, economic, and social factors into decision-making processes. The course aims to develop master's skills in analyzing natural resources, assessing environmental risks, and designing effective management models that consider both global trends and regional characteristics of natural resource use.	Predictive Modeling, Foresight Method	LO 7, LO 8	Written
2	GTS 61506/1 Web mapping	MC OC	5	The discipline focuses on the theoretical and applied foundations of web cartography, spatial data visualization in online environments, and the development of interactive cartographic services. The course examines web map design, publication of geospatial data, web-GIS platforms, cartographic APIs, and tools for creating digital cartographic applications. Master's students acquire skills in geodata integration, cartographic interface design, and spatial data	Spatial Analysis, Web Mapping Workshop	LO 9	Tests, Portfolio, Presentations, Project

				visualization using OpenStreetMap, Leaflet, Mapbox, QGIS, and ArcGIS Online. In addition, students enhance their abilities to develop scientific and educational projects using web cartography tools.			
	GTS 61506/2 Geoinformation technologies in geographical research			The discipline focuses on the theoretical and applied foundations of using Geographic Information Systems (GIS) in geographical research. The course examines methods for collecting, processing, storing, analyzing, and visualizing spatial data, as well as approaches to digital cartography, spatial modeling, and the use of remote sensing data. Master's students acquire skills in applying modern GIS platforms and geoanalytical tools to solve scientific and applied problems. Particular attention is paid to the interpretation of spatial analysis results, the development of cartographic materials, and the digital modeling of geographical processes. In addition, students enhance their abilities to develop GIS-based research projects and make spatially informed decisions.	GIS-Based Learning, GIS Laboratory Workshop	LO 9, LO 10	Tests, Portfolio, Presentations, Project
3	GTS 62506/1 Applied Geostatistics	MC OC	5	The discipline focuses on digital and automated approaches in applied geostatistics for the analysis, modeling, and forecasting of spatial data. The course examines geostatistical methods (kriging, IDW), variogram analysis, spatial interpolation, and techniques for assessing spatial distribution patterns of geographic phenomena. Master's students acquire skills in processing large spatial datasets using Geographic Information Systems (GIS), digital modeling, algorithmic analysis, and automated geostatistical computations. Particular attention is paid to implementing geostatistical models in Python/R environments, cartographic visualization of results, and interpretation of spatial forecasts. In addition, students enhance their abilities to apply digital geostatistical tools to solve applied problems and support scientifically grounded decision-making.	Statistical Modeling, Predictive Modeling	LO 10	Written
	GTS 62506//2 Statistics of environment			The discipline focuses on the methods of collecting, processing, and analyzing statistical indicators describing the state of the environment. The course examines the structure of environmental data, environmental quality indicators, and methods of temporal and spatial statistical analysis. Master's students acquire skills in interpreting environmental monitoring data, applying statistical models, and quantitatively assessing natural and anthropogenic processes. Particular attention is paid to statistical assessment of environmental	Statistical Modeling, Environmental Data Analysis	LO 8, LO 10	Written

				risks, data visualization, and justification of scientific conclusions. In addition, students enhance their abilities to support decision-making and environmental management processes based on environmental statistics.			

RW Research work

Module description: Research work is considered an important component of master's education in the field of geography and includes various stages and activities that contribute to the academic and professional growth of masters. Through teaching practice, research practice, internships and the defense of a master's thesis, masters gain valuable experience in teaching, research and practical application of their knowledge. The application of research methods and the search for academic publications will further strengthen their research skills and strengthen their participation in the academic community.

№	Name of subject and code	Cycle/ component	Credits	Subject discruption	Teaching methods	LO by EP	Assessment methods
1	RW 510/610 Research practice	MC UC	6 (0+4+0+2)	Research practice is focused on obtaining the results of scientific research, critical analysis, substantiation of the theoretical and practical significance of the research problem, as well as the formulation of final conclusions.	Practical work	LO 3, LO 4, LO 9, LO 10	Report
2	RW 521 Master's research work, including internships and the implementation of a Master's thesis	MSRW	3	Possession of skills in identifying scientific priorities, as well as the formation of current tasks and research problems. Completion of research (methodological and practical) sections in accordance with the established rules of protection. Justification of the theoretical and practical significance of the research problem. Conducting an analytical review of scientific literature and independent research in accordance with the developed program.	Practical work	LO 1, LO 3	Report
3	RW 522 Master's research work, including internships and the implementation of a Master's thesis	MSRW	5	Independent study of new theoretical and methodological works of domestic and foreign science. Consolidation of practical skills in the application of modern methods of scientific research. Participation in the research work of the department and the specialized research institute.	Practical work	LO 4, LO 6	Report
4	RW 623 Master's research work, including internships and the implementation of a Master's thesis	MSRW	6	Conducting an analytical review of scientific literature. Conducting independent research in accordance with the developed program. Mastering modern theoretical and methodological achievements in the field of science. Application of modern methods in individual scientific research.	Practical work	LO 7, LO 8	Report

5	RW 624 Master's research work, including internships and the implementation of a Master's thesis	MSRW	10	Submitting the final dissertation draft to the supervisor and then defending the research methods at the university ethics committee at the end of the third semester.	Practical work	LO 9, LO 10	Report
6	FE Final examination	FC	8	Registration and defense of the Master's thesis	Completion of the dissertation	LO 1, LO 3	Thesis defense
	Total		**120**				