



National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 05.03.02 Geography

Educational Programme "Geography of Global Changes and Geoinformation Technology"

Specializations: " Geoinformation Technology and Spatial Modeling", "Global Environmental and Climate Change", "Human Geography and Spatial Decisions"

Implementing unit: Faculty of Geography and Geoinformation Technology, HSE - Moscow

Years of Study: 2024/2025 - 2027/2028

Length of Programme: 4 years

Mode of Study: Full Time

Degree: Bachelor's degree

APPROVED
02.05.2024
Vice Rector
ROSHCHIN S.Y.
Signed with EDS

Block Code	Course	Subject type	Credits	Credits by Years				Planned Educational Programme Development Results
				1	2	3	4	
	Degree Programme		240,00	60,00	60,00	60,00	60,00	
	Major		162,00	43,00	39,00	39,00	41,00	
	Core Professional Block (Major)		95,00	38,00	33,00	18,00	6,00	
	Math Disciplines		14,00	8,00	6,00			
1	Probability Theory and Mathematical Statistics	C	6,00		6,00			GPC-2, UC-1
2	Introduction to Advanced Mathematics	C	5,00	5,00				GPC-1, UC-1
3	Introduction to Physics	C	3,00	3,00				GPC-1, PC-2, PC-5
	Disciplines on the basics of physical and social geography		52,00	20,00	19,00	13,00		
	Disciplines on the basics of social geography		22,00	10,00	9,00	3,00		
1	Spatial Organization of the World Economy	C	3,00			3,00		GPC-2, GPC-3, PC-13, PC-15
2	Sociological Methods in Human Geography	C	3,00		3,00			PC-17, PC-18
3	Geography of Rural Space	C	3,00		3,00			GPC-3, PC-15, PC-16, PC-17, PC-18
4	Theories of Urban Development	C	3,00		3,00			GPC-2, GPC-3, PC-13, PC-15, PC-17
5	Geography of population	C	5,00	5,00				GPC-2, GPC-3, GPC-6, PC-13, PC-15
6	Basics of Human Geography and Area Studies	C	5,00	5,00				GPC-2, GPC-3, GPC-6, PC-13, PC-15
	Disciplines on the basics of physical geography		30,00	10,00	10,00	10,00		
1	Global Changes and Sustainable Development Strategies	C	5,00			5,00		GPC-1, GPC-2, GPC-3, PC-1, PC-13, PC-15, PC-17, PC-3, PC-5
2	Earth System Components: Ocean and Cryosphere	C	4,00		4,00			GPC-1, PC-1
3	Historical Geography and Land Use Change	C	5,00			5,00		GPC-1, GPC-2, GPC-3, PC-1, PC-3, PC-5

4	Past Environmental Changes and Methods of Paleogeography	C	3,00		3,00			GPC-1, PC-1, PC-2, PC-5
5	Landscape Ecology	C	3,00		3,00			GPC-1, PC-1, PC-3, PC-5
6	Earth System Components: Atmosphere and Hydrosphere	C	5,00	5,00				GPC-1, PC-1
7	Earth System Components: Lythosphere, Pedosphere and Biosphere	C	5,00	5,00				GPC-1, PC-1
	Disciplines on the basics of digital cartography, geoinformation technologies and remote sensing methods		29,00	10,00	8,00	5,00	6,00	
1	Spatial Data Integration, Visualization and Analysis	C	5,00		5,00			GPC-4, GPC-5, PC-7, PC-9
2	Remote Sensing Fundamentals: Applied Aspects	C	3,00		3,00			GPC-4, GPC-5, PC-7, PC-9
3	Remote Sensing Fundamentals	C	5,00	5,00				GPC-4, GPC-5, PC-7, PC-9
4	Digital Cartography and Geographic Information Systems	C	5,00	5,00				GPC-4, GPC-5, GPC-6, PC-7, PC-9
5	Spatial Modeling and Machine Learning	C	5,00			5,00		GPC-4, PC-10, PC-8, PC-9
6	Digital Twins and AI in Geography	C	6,00				6,00	GPC-4, GPC-5, PC-10, PC-9
	Elective Professional Block (Major)		67,00	5,00	6,00	21,00	35,00	
	Дисциплины специализаций		30,00			12,00	18,00	
	Геоинформационные технологии и пространственное моделирование		30,00			12,00	18,00	
1	Open GIS	E	3,00			3,00		GPC-4, GPC-5, PC-10, PC-11
2	Thematic Mapping	E	3,00			3,00		GPC-2, GPC-3, GPC-4, GPC-5, PC-11, PC-9
3	Spatial Modeling of the Environment	E	3,00			3,00		GPC-2, GPC-3, GPC-4, GPC-5, PC-7, PC-9
4	Thematic Interpretation of Remote Data	E	3,00			3,00		GPC-2, GPC-3, GPC-4, GPC-5, PC-11, PC-9
5	Web Cartography and Web-GIS	E	6,00				6,00	GPC-4, GPC-5, PC-10, PC-11
6	Spatial Data Management	E	6,00				6,00	GPC-4, GPC-5, PC-11, PC-12
7	Geodatabases	E	6,00				6,00	GPC-4, GPC-5, PC-10, PC-11, PC-12
	Общественная география		30,00			12,00	18,00	
1	Data and Mathematical Methods in Human Geography	E	3,00			3,00		GPC-1, GPC-2, GPC-4, GPC-5, PC-13, PC-14, PC-15, PC-16, PC-18
2	Theory and Methods of Political Geography	E	3,00			3,00		GPC-2, GPC-3, PC-13, PC-14, PC-16
3	Legal Framework for Spatial Development	E	3,00			3,00		GPC-2, GPC-3, PC-14, PC-16, PC-18
4	Theory and Methods of Cultural Geography	E	3,00			3,00		GPC-2, GPC-3, PC-13, PC-14, PC-16
5	Theory and Methods of Economic Geography	E	4,00				4,00	GPC-2, GPC-3, PC-13, PC-14, PC-16
6	History and Concepts of Geography	E	6,00				6,00	GPC-2, GPC-3, PC-13, PC-14, PC-16
7	Regional and Spatial Economics	E	4,00				4,00	GPC-2, GPC-3, PC-13, PC-14, PC-16, PC-18
8	Theory of Settlement Systems	E	4,00				4,00	GPC-2, GPC-3, PC-16, PC-17, PC-18
	Глобальные изменения природной среды и климата		30,00			12,00	18,00	

1	Mathematical Methods, Analysis and Data Visualization in the Study of Natural Systems	E	3,00			3,00		GPC-1, GPC-2, GPC-5, PC-1, PC-3, PC-5
2	Fundamentals of Geoecology and Ecosystem Theory	E	3,00			3,00		GPC-1, GPC-2, GPC-3, PC-1, PC-3
3	Geophysical and Geochemical Methods in Geography	E	3,00			3,00		GPC-1, GPC-2, GPC-4, PC-1, PC-3, PC-5
4	Carbon Cycles	E	3,00			3,00		GPC-1, GPC-2, GPC-3, GPC-4, PC-1, PC-3, PC-5
5	Geography of Natural Risks and Methods of Natural Risk Management	E	6,00				6,00	GPC-1, GPC-2, GPC-3, PC-1, PC-3, PC-4
6	Short- and Long-Term Forecasts of the Environment	E	6,00				6,00	GPC-1, GPC-2, GPC-3, GPC-4, PC-1, PC-3, PC-5
7	Environmental Monitoring Systems and Databases	E	6,00				6,00	GPC-1, GPC-2, GPC-3, GPC-4, PC-1, PC-2, PC-3, PC-5, PC-6
	Общие дисциплины по выбору		18,00			6,00	12,00	
	Дисциплины по выбору для 3 курса		6,00			6,00		
	Блок 1		3,00			3,00		
1	Geomarketing and Analysis of Territory	E	3,00			3,00		GPC-2, GPC-3, GPC-4, GPC-5, PC-11, PC-9
2	Social Production of Space	E	3,00			3,00		GPC-2, GPC-3, PC-13, PC-15, PC-17, PC-18
	Блок 2		3,00			3,00		
1	Spatial Econometrics	E	3,00			3,00		GPC-1, GPC-2, GPC-3, PC-13, PC-15, PC-17, PC-18
2	Medical Geography	E	3,00			3,00		GPC-1, GPC-2, GPC-3, PC-1, PC-3, PC-4, PC-5
	Дисциплины по выбору для 4 курса		12,00				12,00	
1	Water Resources under Global Change	E	4,00				4,00	GPC-1, GPC-2, GPC-3, PC-1, PC-3, PC-5
2	Geolocation Services, Cartographic and GIS Products	E	4,00				4,00	GPC-4, GPC-5, PC-10, PC-9
3	Global Land Use Changes	E	4,00				4,00	GPC-2, GPC-3, GPC-4, GPC-5
4	Operational and Sensor Mapping	E	4,00				4,00	GPC-2, GPC-3, GPC-4, GPC-5, PC-10, PC-8, PC-9
5	Data Exploration Platforms for Urban and Spatial Planning	E	4,00				4,00	GPC-2, GPC-3, GPC-4, GPC-5, PC-11, PC-12
6	Design and Exploration Work	E	4,00				4,00	GPC-1, GPC-2, GPC-3, GPC-4, PC-2, PC-4, PC-5, PC-6
7	Basics of Environmental Impact Assessment	E	4,00				4,00	GPC-1, GPC-2, GPC-3, PC-1, PC-2, PC-3, PC-5
8	Arctic Region in the Context of Global Change	E	4,00				4,00	GPC-1, GPC-2, GPC-3, PC-1, PC-13, PC-15, PC-17, PC-3, PC-5
9	Regional Policy and Regional Strategies	E	4,00				4,00	GPC-2, GPC-3, PC-14, PC-15, PC-16, PC-18

10	Theory and Practice of Spatial Planning	E	4,00				4,00	GPC-2, GPC-3, PC-14, PC-15, PC-16, PC-18
11	Spatial Transformation of Modern Russia	E	4,00				4,00	GPC-2, GPC-3, PC-13, PC-14, PC-16
	Seminars and Career Guidance Disciplines		19,00	5,00	6,00	3,00	5,00	
	Elective Research Seminars		3,00		3,00			
1	Research Seminar "Spatial Information Crowdsourcing"	E	3,00		3,00			GPC-4, PC-10, PC-11, PC-13, PC-14, UC-6
2	Research Seminar "Economic Geography and Regional Analysis"	E	3,00		3,00			GPC-3, PC-14, PC-15, PC-16, PC-18
	Research Seminars		16,00	5,00	3,00	3,00	5,00	
1	Research Seminar "Science Communications"	C	3,00			3,00		GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, GPC-6, PC-1, PC-10, PC-13, PC-14, PC-15, PC-16, PC-2, PC-3, PC-4, PC-7, PC-8, PC-9, UC-3, UC-4, UC-5, UC-6
2	Research Seminar (4th year)	C	5,00				5,00	GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, GPC-6, PC-1, PC-10, PC-13, PC-14, PC-15, PC-16, PC-2, PC-3, PC-4, PC-7, PC-8, PC-9, UC-3, UC-4, UC-5
3	Research Seminar «Basics of Geographical Research»	C	3,00		3,00			GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, GPC-6, PC-1, PC-2, PC-3, PC-4, UC-3, UC-4, UC-6
4	Research Seminar "Introduction to Profession"	C	5,00	5,00				GPC-6, PC-1, PC-13, PC-15, PC-3, PC-7, PC-9, UC-3, UC-4, UC-6
	Internship		33,00	7,00	8,00	9,00	9,00	
	Professional Internship		12,00	7,00	5,00			
1	Field Practice 1	C	7,00	7,00				GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, GPC-6, PC-14, PC-15, PC-2, PC-3, PC-8, PC-9, UC-1, UC-3, UC-4, UC-6
2	Field Practice 2	C	5,00		5,00			GPC-1, GPC-2, GPC-3, GPC-4, GPC-6, PC-1, PC-13, PC-14, PC-15, PC-2, PC-3, PC-7, PC-8, PC-9, UC-1, UC-3, UC-4, UC-6
	Project Internship		7,00		3,00	4,00		
1	Geographic Research Methods Project	C	4,00			4,00		GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, GPC-6, PC-1, PC-13, PC-14, PC-15, PC-16, PC-2, PC-3, PC-7, PC-9, UC-1, UC-3, UC-4, UC-6
2	2nd Year Project	C	3,00		3,00			GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, GPC-6, PC-1, PC-10, PC-11, PC-12, PC-13, PC-14, PC-15, PC-16, PC-17, PC-18, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, UC-1, UC-3, UC-4, UC-6
	Research Internship		14,00			5,00	9,00	

1	Graduation Internship	C	5,00				5,00	GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, GPC-6, PC-1, PC-10, PC-13, PC-14, PC-15, PC-16, PC-2, PC-3, PC-4, PC-7, PC-8, PC-9, UC-1, UC-3, UC-4, UC-6
2	Work Experience Internship	C	5,00			5,00		PC-1, PC-2, PC-5, UC-1
3	Preparation of Graduation Thesis	C	4,00				4,00	GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, PC-1, PC-10, PC-13, PC-15, PC-16, PC-3, PC-4, PC-7, PC-9, UC-1, UC-2, UC-4
	General Courses		14,00	10,00		1,00	3,00	
	Core General Courses		2,00	1,00		1,00		
1	Safe Living Basics	C	1,00	1,00				UC-10, UC-11, UC-8, UC-9
2	Physical Training	C	1,00			1,00		UC-7
	Optional General Courses		12,00	9,00			3,00	
1	Law	C	3,00				3,00	GPC-6, UC-10
2	Russian History	C	4,00	4,00				UC-5
3	Foundations of Russian Statehood	C	2,00	2,00				GPC-2
4	Economics	C	3,00	3,00				UC-9
	Minor		20,00		10,00	10,00		
1	Minor	E	20,00		10,00	10,00		UC-1, UC-2, UC-3
	English		1,00				1,00	
	Examinations		1,00				1,00	
1	Independent English Exam (offered in a foreign language)	C						UC-4
2	Project Proposal (offered in a foreign language)	C	1,00				1,00	GPC-6, PC-1, PC-10, PC-13, PC-15, PC-16, PC-3, PC-4, PC-7, PC-9, UC-2, UC-4
3	English Language Integrative Exam (offered in a foreign language)	C						UC-4
	Optional Courses							
1	English (offered in a foreign language)	O	14,00	8,00	6,00			UC-4
2	Academic English Writing (offered in a foreign language)	O	2,00				2,00	UC-4
	Data Culture		4,00		3,00	1,00		
1	Independent Programming Test. Intermediate	C						GPC-4
2	Introduction to Python for Data Science	C	3,00		3,00			GPC-4, PC-1, PC-3
3	External Examinations on Digital Skills. Entry-level	C						GPC-4
4	External Examinations on Digital Skills. Intermediate Level	C						GPC-4
5	External Examinations on Digital Skills. Final Level	C						GPC-4
6	Independent Digital Literacy Test	C						GPC-4
7	Data Science, AI and Generative Models Independent Test. Intermediate	C	1,00			1,00		GPC-4
	Final State Certification (FSC)		6,00				6,00	
	Thesis Work		6,00				6,00	

1	Presenting of Graduation Thesis	C	6,00				6,00	PC-1, PC-10, PC-11, PC-12, PC-13, PC-14, PC-15, PC-16, PC-17, PC-18, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9
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Curriculum agreed:

Academic Supervisor	Matasov V.M.	24.04.2024
Dean	KURICHEV N.K.	24.04.2024
Head of Centre for Educational Model Design	LEPESHKIN I.A.	26.04.2024

* Subject type:

Compulsory course	C
Elective course	E
Optional course	O