



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: 2023/2024 - 2026/2027

Length of Programme: 4 years

Mode of Study: Full Time

Degree: Bachelor's degree

APPROVED

06.06.2023

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		155,00	44,00	39,00	36,00	36,00	
	Core Professional Block (Major)		99,00	40,00	33,00	14,00	12,00	
	Math Disciplines		11,00	5,00	6,00			
1	Introduction to Advanced Mathematics	C	5,00	5,00				GPC-1, UC-1
2	Probability Theory and Mathematical Statistics	C	6,00		6,00			GPC-2, UC-1
	Disciplines on the basics of physical and social geography		61,00	25,00	19,00	9,00	8,00	
	Disciplines on the basics of social geography		33,00	15,00	9,00	9,00		
1	Basics of Human Geography and Area Studies	C	5,00	5,00				GPC-2, GPC-3, GPC-6, PC-13, PC-15
2	Geography of population	C	4,00	4,00				GPC-3, PC-17, PC-18
3	Political Theory Implications in Human Geography	C	3,00	3,00				GPC-2, GPC-3, GPC-6, PC-13, PC-15
4	Social Theory in Geographic Research	C	3,00	3,00				GPC-2, GPC-3, GPC-6, PC-13, PC-15
5	Geography of Rural Space	C	3,00		3,00			GPC-3, PC-15, PC-17, PC-18, UC-2
6	Theories of Urban Development	C	3,00		3,00			GPC-2, GPC-3, PC-13, PC-15, PC-17
7	Sociological Methods in Human Geography	C	3,00		3,00			GPC-2, PC-15, PC-16
8	Spatial Organization of the World Economy (offered in a foreign language)	C	3,00			3,00		GPC-2, GPC-3, PC-13, PC-15
9	Socio-ecological Systems Evolution	C	6,00			6,00		GPC-2, GPC-3, PC-13, PC-15, PC-17
	Disciplines on the basics of physical geography		28,00	10,00	10,00		8,00	
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: Atmosphere and Hydrosphere	C	5,00	5,00				GPC-1, PC-1

3	Earth System Components: Lythosphere, Pedosphere and Biosphere	C	5,00	5,00				GPC-1, PC-1
4	Earth System Components: Ocean and Cryosphere	C	4,00		4,00			GPC-1, PC-1
5	Palaeogeography	C	3,00		3,00			GPC-1, PC-1, PC-2, PC-5
6	Landscape Ecology	C	3,00		3,00			GPC-1, PC-1, PC-3, PC-5
7	Development of Environmental Policies (offered in a foreign language)	C	3,00				3,00	GPC-3, PC-3, PC-5
	Disciplines on the basics of digital cartography, geoinformation technologies and remote sensing methods		27,00	10,00	8,00	5,00	4,00	
1	Remote Sensing Fundamentals	C	5,00	5,00				GPC-4, GPC-5, PC-7, PC-9
2	Digital Cartography and Geographic Information Systems	C	5,00	5,00				GPC-4, GPC-5, GPC-6, PC-7, PC-9
3	Remote Sensing Fundamentals: Applied Aspects	C	3,00		3,00			GPC-4, GPC-5, PC-7, PC-9
4	Spatial data integration, visualization and analysis	C	5,00		5,00			GPC-4, GPC-5, PC-7, PC-9
5	Digital Twins and AI in Geography	C	4,00				4,00	GPC-4, PC-11, PC-14
6	Spatial Modeling of Socio-ecological Systems	C	5,00			5,00		GPC-4, GPC-5, PC-7, PC-9
	Elective Professional Block (Major)		56,00	4,00	6,00	22,00	24,00	
	Дисциплины специализаций		20,00			12,00	8,00	
	Геоинформационные технологии и пространственное моделирование		20,00			12,00	8,00	
1	3D Analysis and Digital Models	C	4,00				4,00	GPC-4, GPC-5, PC-10, PC-11
2	Spatial Data for Operational Management and Territorial Planning	C	4,00				4,00	GPC-4, GPC-5, PC-10, PC-11, PC-12
3	Thematic Mapping	C	3,00			3,00		GPC-2, GPC-3, GPC-4, GPC-5, PC-11, PC-9
4	Open GIS	C	3,00			3,00		GPC-4, GPC-5, PC-10, PC-11
5	Spatial Data Management	C	3,00			3,00		GPC-4, GPC-5, PC-11, PC-12
6	Thematic Interpretation of Distance Information	C	3,00			3,00		GPC-2, GPC-3, GPC-4, GPC-5, PC-11, PC-9
	Общественная география		20,00			12,00	8,00	
1	Spatial Planning	C	4,00				4,00	GPC-2, GPC-3, PC-13, PC-14, PC-16
2	Regional Policy and Regional Strategies	C	4,00				4,00	GPC-2, GPC-3, PC-13, PC-14, PC-16, PC-18
3	Theory and Methods of Political Geography	C	3,00			3,00		GPC-2, GPC-3, PC-13, PC-14, PC-16
4	Theory and Methods of Cultural Geography	C	3,00			3,00		GPC-2, GPC-3, PC-13, PC-14, PC-16
5	Economic and Geographical Analysis of Industries	C	3,00			3,00		GPC-1, GPC-2, GPC-4, GPC-5, PC-13, PC-14, PC-15, PC-16, PC-18
6	Fundamentals of Public and Local Governance	C	3,00			3,00		GPC-2, GPC-3, PC-14, PC-16, PC-18
	Глобальные изменения природной среды и климата		20,00			12,00	8,00	

1	Geophysical and Geochemical Methods in Geography	C	4,00				4,00	GPC-1, GPC-2, GPC-4, PC-1, PC-3, PC-5
2	Introduction to Climate System Modeling	C	4,00				4,00	GPC-1, GPC-2, GPC-3, GPC-4, PC-1, PC-3, PC-5
3	Research Seminar of Institute of Geography the Russian Academy of Sciences	C	5,00			5,00		GPC-1, GPC-2, GPC-4, PC-1, PC-3, PC-5
4	Modeling Ecosystem Processes	C	3,00			3,00		GPC-2, GPC-3, PC-2, PC-3
5	AI in Earth Science	C	4,00			4,00		GPC-4, GPC-5, PC-3, PC-5
	Общие дисциплины по выбору		14,00			6,00	8,00	
	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	Natural Resources Assessment	E	3,00			3,00		GPC-2, GPC-3, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6
3	Legal Framework for Spatial Development	E	3,00			3,00		GPC-2, GPC-3, PC-13, PC-15, PC-17, PC-18
	Блок 2		3,00			3,00		
1	Basics of Demography and Population Geography	E	3,00			3,00		GPC-1, GPC-2, GPC-3, PC-1, PC-3, PC-4, PC-5
2	Map Design	E	3,00			3,00		GPC-1, GPC-2, GPC-3, PC-13, PC-15, PC-17, PC-18
3	Natural Risks Assessment and Management	E	3,00			3,00		GPC-2, GPC-3, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6
	Elective Subjects for the 4th Year		8,00				8,00	
	Block 1		4,00				4,00	
1	Computer Vision and Machine Learning in Remote Sensing	E	4,00				4,00	GPC-5, PC-11, PC-8, PC-9
2	Institutional Economics	E	4,00				4,00	GPC-2, PC-17, PC-18
3	Internet of Things for Environmental Monitoring	E	4,00				4,00	GPC-4, PC-1, PC-2
	Block 2		4,00				4,00	
1	Web Cartography and Web-GIS	E	4,00				4,00	GPC-4, PC-8, PC-9
2	Statistical Methods for Spatial Analysis	E	4,00				4,00	GPC-1, GPC-2, GPC-3, PC-15, PC-18
3	Urban Climate Modelling	E	4,00				4,00	GPC-5, PC-3, PC-5
	Seminars and Career Guidance Disciplines		22,00	4,00	6,00	4,00	8,00	
	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, PC-9, UC-6
2	Research Seminar "Economic Geography and Regional Analysis"	E	3,00		3,00			GPC-3, PC-14, PC-16, PC-18
3	Research Seminar "Systems of Data Monitoring and Databases"	E	3,00		3,00			PC-2, PC-4, PC-6
	Research Seminars		19,00	4,00	3,00	4,00	8,00	

1	Research Seminar "Science Communications"	C	4,00				4,00	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 "Introduction to Profession"	C	4,00	4,00				GPC-6, PC-1, PC-13, PC-15, PC-3, PC-7, PC-9, UC-3, UC-4, UC-6
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 "Theoretical Geography"	C	4,00				4,00	GPC-3, PC-15, PC-3, UC-4
5	Research Seminar "Fundamentals of Project Management"	C	4,00			4,00		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
	Internship		40,00	6,00	8,00	12,00	14,00	
	Professional Internship		11,00	6,00	5,00			
1	Field Practice 1	C	6,00	6,00				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		8,00		3,00	5,00		
1	Project on Spatial Data Analysis Method	C	5,00			5,00		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		21,00			7,00	14,00	
1	Graduation Internship	C	7,00				7,00	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	Preparation of Graduation Thesis	C	7,00				7,00	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
3	Work Experience Internship	C	7,00			7,00		GPC-6, PC-1, PC-16, PC-18, PC-2, PC-5, UC-1
	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	Economics	C	3,00	3,00				UC-9
2	Foundations of Russian Statehood	C	2,00	2,00				GPC-2
3	Russian History	C	4,00	4,00				UC-5
4	Law	C	3,00				3,00	GPC-6, UC-10
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	Project Proposal	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
2	English Language Integrative Exam (offered in a foreign language)	C						UC-4
3	Independent English Exam (offered in a foreign language)	C						UC-4
Optional Courses								
1	Academic English Writing (offered in a foreign language)	O	2,00				2,00	GPC-6, UC-5
2	English (offered in a foreign language)	O	14,00	8,00	6,00			UC-4
Data Culture			4,00		3,00	1,00		
1	Independent Digital Literacy Test	C						GPC-4
2	Independent Programming Test. Intermediate	C						GPC-4
3	Introduction to Python for Data Science	C	3,00		3,00			GPC-4, PC-1, PC-3
4	External Examinations on Digital Skills. Entry-level	C						GPC-4
5	External Examinations on Digital Skills. Intermediate Level	C						GPC-4
6	Data Science, AI and Generative Models Independent Test. Intermediate	C	1,00			1,00		GPC-4
7	External Examinations on Digital Skills. Final Level	C						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

Curriculum agreed:

Academic Supervisor

Матасов B.M.

29.05.2023

Dean

KURICHEV N.K.

29.05.2023

Head of Centre for
Educational Model Design

LEPESHKIN I.A.

02.06.2023

* Subject type:

Compulsory course C

Elective course E

Optional course O