



National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 01.04.02 Applied Mathematics and Informatics

Educational Programme "Data Science"

Trajectories: "Artificial Intelligence and Data Analysis"

Implementing unit: Faculty of Computer Science, HSE - Moscow

APPROVED

15.05.2023

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Years of Study: 2023/2024 - 2024/2025

Length of Programme: 2 years

Mode of Study: Full Time

Degree: Master's degree / MBA

Block Code	Course	Subject type	Credits	Credits by Years		Planned Educational Programme Development Results
				1	2	
	Degree Programme		120,00	60,00	60,00	
	Artificial Intelligence and Data Analysis (General track)		120,00	60,00	60,00	
	Key Seminars		15,00	9,00	6,00	
1	Mentor's Seminar (offered in a foreign language)	C	6,00	3,00	3,00	PC-1, PC-2, PC-4, PC-5, PC-6, PC-7, PC-9, UC-6
2	Research Seminar "Number Theoretic and Algebraic Methods in Data Analysis" (offered in a foreign language)	C	9,00	6,00	3,00	GPC-1.AMI, GPC-3.AMI, PC-1, PC-4, PC-6, PC-7, UC-1, UC-3, UC-4, UC-6
	Internship		15,00	3,00	12,00	
	Project Internship		3,00	3,00		
1	Term Paper	C	3,00	3,00		GPC-1.AMI, GPC-3.AMI, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-9, UC-1, UC-2, UC-3, UC-6
	Research Internship		12,00		12,00	
1	Preparation of Graduation Thesis	C	12,00		12,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, PC-1, PC-10, PC-2, PC-4, PC-5, PC-6, PC-7, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Major		72,00	42,00	30,00	
	Compulsory Disciplines 1 Academic Year		18,00	18,00		
1	Linear Algebra for Data Science (offered in a foreign language)	C	6,00	6,00		GPC-1.AMI, GPC-3.AMI, GPC-4.AMI, PC-2, PC-6, UC-3, UC-6
2	Ordered Sets in Data Analysis (offered in a foreign language)	C	6,00	6,00		GPC-1.AMI, UC-1, UC-2, UC-3

3	Modern Methods of Decision Making (offered in a foreign language)	C	6,00	6,00		UC-1, UC-2, UC-3
Elective Courses 1st year			24,00	24,00		
1	Decision Making and Data Analysis under Uncertainty and Ambiguity	E	6,00	6,00		GPC-2.AMI, UC-3, UC-4
2	Network Science (offered in a foreign language)	E	6,00	6,00		GPC-1.AMI, UC-1, UC-2, UC-3
3	Discrete Mathematics for Application and Algorithm Development (offered in a foreign language)	E	3,00	3,00		UC-1, UC-2, UC-3
4	Applied Quantitative Logistics (offered in a foreign language)	E	6,00	6,00		GPC-2.AMI, PC-10, UC-1, UC-2, UC-3
5	Computational Linguistics and Text Analysis	E	6,00	6,00		GPC-2.AMI, PC-10, UC-1, UC-2, UC-3
6	Geospatial Data Science (offered in a foreign language)	E	6,00	6,00		GPC-1.AMI, UC-1, UC-2, UC-3
7	Probability Theory and Mathematical Statistics (offered in a foreign language)	E	3,00	3,00		UC-1, UC-2, UC-3
8	Modern Methods of Data Analysis (offered in a foreign language)	E	6,00	6,00		GPC-3.AMI, UC-1, UC-5
9	Robust Methods in Statistics	E	6,00	6,00		GPC-2.AMI, UC-1, UC-3
10	Natural Language Processing on Python	E	6,00	6,00		GPC-3.AMI, PC-10, UC-1
11	Basics of Data Analysis (offered in a foreign language)	E	6,00	6,00		GPC-3.AMI, UC-1, UC-2, UC-5
12	Games and Decisions in Data Analysis and Modelling (offered in a foreign language)	E	6,00	6,00		UC-1, UC-2, UC-3
13	Machine Learning	E	12,00	12,00		GPC-1.AMI, GPC-2.AMI, UC-1, UC-2, UC-3
Compulsory Disciplines 2 course			6,00		6,00	
1	Machine Learning and Data Mining (offered in a foreign language)	C	6,00		6,00	GPC-1.AMI, UC-1, UC-2, UC-3
Elective courses 2 year			24,00		24,00	
1	Deep Learning (offered in a foreign language)	E	6,00		6,00	GPC-2.AMI, UC-3
2	Medical Informatics (offered in a foreign language)	E	6,00		6,00	GPC-2.AMI, GPC-3.AMI, PC-10, UC-1, UC-2, UC-3
3	Time Series Analysis and Forecasting (offered in a foreign language)	E	6,00		6,00	GPC-2.AMI, PC-10, UC-1, UC-2, UC-3
4	Introduction to Knowledge Representation	E	6,00		6,00	GPC-3.AMI, UC-3
5	Automated Methods for Program Verification (offered in a foreign language)	E	6,00		6,00	GPC-2.AMI, PC-11, UC-1, UC-3, UC-6
Magolego			15,00	6,00	9,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	6,00	9,00	UC-1, UC-3, UC-4
Final State Certification (FSC)			3,00		3,00	

1	Final Qualification Paper	C	3,00	3,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-11, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
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Curriculum agreed:

Academic Supervisor KUZNETSOV S.O. 05.05.2023

Dean ARZHANTSEV I.V. 05.05.2023

Head of Centre for Educational Model Design LEPESHKIN I.A. 14.05.2023

* Subject type:

Compulsory course C

Elective course E