



National Research University Higher School of Economics (HSE)

Curriculum

Field of study 01.04.02 Applied Mathematics and Informatics

Educational Programme "Data Science"

Trajectories: "Artificial Intelligence and Data Analysis", "Artificial Intelligence and Information Transmission (AIIT)"

Implementing unit: Faculty of Computer Science, HSE - Moscow  
1 st, 2022/2023 academic year

APPROVED

18.05.2022

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Length of Programme: 2 years

Years of Study: 2022/2023 - 2023/2024

Mode of Study: Full Time

Degree: Master's degree / MBA

Block Code	Course	Subject type	Department	Credits	Total Academic Hours	Contact Hours	Allocation of Contact Hours				Additional Information
							1	2	3	4	
<b>Degree Programme</b>				<b>114,00</b>	<b>4 332</b>	<b>156</b>	<b>20</b>	<b>20</b>	<b>58</b>	<b>58</b>	
<b>Artificial Intelligence and Data Analysis (General track)</b>				<b>60,00</b>	<b>2 280</b>	<b>78</b>	<b>10</b>	<b>10</b>	<b>28</b>	<b>30</b>	
<b>Major</b>				<b>42,00</b>	<b>1 596</b>						
<b>Elective Courses 1st year</b>				<b>24,00</b>	<b>912</b>						
1	Network Science	E	Department of Data Analysis and Artificial Intelligence	6,00	228	78			40	38A	Foreign language
2	Discrete Mathematics for Application and Algorithm Development	E	Department of Data Analysis and Artificial Intelligence	3,00	114	28	28A				Foreign language
3	Games and Decisions in Data Analysis and Modelling	E	Department of Mathematics	6,00	228	64			32	32A	Online Course, Foreign language
4	Computational Linguistics and Text Analysis	E	Department of Data Analysis and Artificial Intelligence	6,00	228	62			32	30A	
5	Machine Learning	E	Department of Data Analysis and Artificial Intelligence	12,00	456	56	14	14A	14	14A	
6	Geospatial Data Science	E	Department of Software Engineering	6,00	228	40	16	24A			Foreign language
7	Decision Making and Data Analysis under Uncertainty and Ambiguity	E	Department of Mathematics	6,00	228	56	28	28A			
8	Natural Language Processing on Python	E	Department of Complex Systems Modelling Technologies	6,00	228	52			32	20A	Foreign language
9	Applied Quantitative Logistics	E	Department of Data Analysis and Artificial Intelligence	6,00	228	56			32	24A	Foreign language
10	Robust Methods in Statistics	E	Department of Complex Systems Modelling Technologies	6,00	228	52	24	28A			

11	Modern Methods of Data Analysis	E	Department of Data Analysis and Artificial Intelligence	6,00	228	54	28	26A			Foreign language
12	Probability Theory and Mathematical Statistics	E	Department of Data Analysis and Artificial Intelligence	3,00	114	28	28A				Foreign language
<b>Compulsory Disciplines 1 Academic Year</b>				<b>18,00</b>	<b>684</b>						
1	Linear Algebra for Data Science	C	Department of Mathematics	6,00	228	54	28	26A			Foreign language
2	Modern Methods of Decision Making	C	Department of Data Analysis and Artificial Intelligence	6,00	228	60			36	24A	Foreign language
3	Ordered Sets in Data Analysis	C	Department of Data Analysis and Artificial Intelligence	6,00	228	52	28A	24A			Foreign language
<b>Key Seminars</b>				<b>9,00</b>	<b>342</b>	<b>76</b>	<b>10</b>	<b>10</b>	<b>28</b>	<b>28</b>	
1	Research Seminar "Number Theoretic and Algebraic Methods in Data Analysis"	C	Department of Data Analysis and Artificial Intelligence	6,00	228	36			18	18A	Foreign language
2	Mentor's Seminar	C	Department of Data Analysis and Artificial Intelligence	3,00	114	40	10	10	10	10A	Foreign language
<b>Internship</b>				<b>3,00</b>	<b>114</b>	<b>2</b>				<b>2</b>	
<b>Project Internship</b>				<b>3,00</b>	<b>114</b>	<b>2</b>				<b>2</b>	
1	Term Paper	C		3,00	114	2				2A	
<b>Artificial Intelligence and Information Transmission (AIIT) (General track)</b>				<b>60,00</b>	<b>2 280</b>	<b>78</b>	<b>10</b>	<b>10</b>	<b>30</b>	<b>28</b>	
<b>Major</b>				<b>42,00</b>	<b>1 596</b>						
<b>Elective Courses 1st year</b>				<b>18,00</b>	<b>684</b>						
1	Network Science	E	Department of Data Analysis and Artificial Intelligence	6,00	228	78			40	38A	Foreign language
2	Discrete Mathematics for Application and Algorithm Development	E	Department of Data Analysis and Artificial Intelligence	3,00	114	28	28A				Foreign language
3	Games and Decisions in Data Analysis and Modelling	E	Department of Mathematics	6,00	228	64			32	32A	Online Course, Foreign language
4	Computational Linguistics and Text Analysis	E	Department of Data Analysis and Artificial Intelligence	6,00	228	62			32	30A	
5	Machine Learning	E	Department of Data Analysis and Artificial Intelligence	12,00	456	56	14	14A	14	14A	
6	Machine Learning and Data Mining	E	Department of Data Analysis and Artificial Intelligence	6,00	228	54	28	26A			Foreign language
7	Geospatial Data Science	E	Department of Software Engineering	6,00	228	40	16	24A			Foreign language
8	Decision Making and Data Analysis under Uncertainty and Ambiguity	E	Department of Mathematics	6,00	228	56	28	28A			
9	Natural Language Processing on Python	E	Department of Complex Systems Modelling Technologies	6,00	228	52			32	20A	Foreign language
10	Applied Quantitative Logistics	E	Department of Data Analysis and Artificial Intelligence	6,00	228	56			32	24A	Foreign language
11	Robust Methods in Statistics	E	Department of Complex Systems Modelling Technologies	6,00	228	52	24	28A			

12	Modern Methods of Data Analysis	E	Department of Data Analysis and Artificial Intelligence	6,00	228	54	28	26A			Foreign language
13	Probability Theory and Mathematical Statistics	E	Department of Data Analysis and Artificial Intelligence	3,00	114	28	28A				Foreign language
<b>Compulsory Disciplines 1 Academic Year</b>				<b>24,00</b>	<b>912</b>						
1	Image Analysis	C	Department of Complex Systems Modelling Technologies	6,00	228	64			32	32A	
2	Convex Optimization and Applications	C	Department of Complex Systems Modelling Technologies	6,00	228	40			20	20A	
3	Mathematical Foundations of Information Transmission	C	Department of Complex Systems Modelling Technologies	6,00	228	36			20	16A	
4	Modern Matrix Equations	C	Department of Complex Systems Modelling Technologies	6,00	228	48			24	24A	
<b>Key Seminars</b>				<b>9,00</b>	<b>342</b>	<b>76</b>	<b>10</b>	<b>10</b>	<b>30</b>	<b>26</b>	
1	Research Seminar "Artificial Intelligence and Information Transmission"	C	Department of Complex Systems Modelling Technologies	6,00	228	36			20	16A	
2	Mentor's Seminar	C	Department of Complex Systems Modelling Technologies	3,00	114	40	10	10	10	10A	
<b>Internship</b>				<b>3,00</b>	<b>114</b>	<b>2</b>				<b>2</b>	
<b>Project Internship</b>				<b>3,00</b>	<b>114</b>	<b>2</b>				<b>2</b>	
1	Term Paper	C		3,00	114	2				2A	
<b>General Components</b>				<b>6,00</b>	<b>228</b>						
<b>Magolego</b>				<b>6,00</b>	<b>228</b>						
1	University Pool Courses (MAGOLEGO)	E		6,00	228						

**Curriculum agreed:**

Academic Supervisor	KUZNETSOV S.O.	17.05.2022
Dean	ARZHANTSEV I.V.	17.05.2022
Head of Degree Programmes Development Office	MAMONOVA M.A.	18.05.2022

\* Subject type:

Compulsory course

C

Elective course

E