National Research University Higher School of Economics (HSE)

Curriculum
Field of study 01.03.02 Applied Mathematics and Information Science,
38.03.01 Economics
Educational Programme "Economics and Data Science"
Implementing unit: Faculty of Economic Sciences, HSE - Moscow
3 rd, 2024/2025 academic year

Length of Programme: 4 years
Years of Study: 2022/2023 - 2025/2026
Mode of Study: Full Time
Degree: Bachelor's degree

Block Code	Course	Subject type	Department	Credits	Total Academic Hours	Contact Hours	Allocation of Contact Hours				Additional Information
							1	2	3	4	
	Degree Progamme			**60,00**	**2 280**	**642**	**138**	**142**	**198**	**164**	
	Data Culture			**7,00**	**266**	**82**			**40**	**42**	
1	Machine Learning 2	C	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
2	Data Science, AI and Generative Models Independent Test. Advanced Level	C	отдел развития цифровых компетенций	1,00	38	2				2A	Online Course
	Major			**44,00**	**1 672**	**526**	**124**	**126**	**156**	**120**	
	Core Professional Block (Major)			**29,00**	**1 102**	**356**	**96**	**98**	**82**	**80**	
	Макроэкономика-2			**6,00**	**228**	**84**	**42**	**42**			
1	Macroeconomics-2	E	Department of Theoretical Economics	6,00	228	84	42	42A			
2	Macroeconomics-2 (advanced course)	E	Department of Theoretical Economics	6,00	228	84	42	42A			
	Методы оптимизации			**6,00**	**228**	**80**			**40**	**40**	
1	Dynamic Optimization in Economics and Finance	E	Department of Applied Economics	6,00	228	56	28	28A			
2	Optimization Methods	E	Joint Department of Mathematical Methods in System Analysis with RAS Institute of System Analysis	6,00	228	80			40	40A	Online Course
3	Optimization in Machine Learning	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	Online Course
	Compulsory Courses			**6,00**	**228**	**56**	**28**	**28**			
1	Machine Learning 1	C	Department of Big Data and Information Retrieval	6,00	228	56	28	28A			Online Course

	Econometrics 1			5,00	190	54	26	28			
1	Econometrics 1	E	Department of Applied Economics	5,00	190	54	26	28A			
2	Econometrics 1 (Advanced course)	E	Department of Applied Economics	5,00	190	54	26	28A			
	Econometrics 2			6,00	228	82			42	40	
1	Econometrics 2	E	Department of Applied Economics	6,00	228	82			42	40A	
2	Econometrics 2 (Advanced course)	E	Department of Applied Economics	6,00	228	82			42	40A	
	Elective Professional Block (Major)			15,00	570	170	28	28	74	40	
	Elective Courses			15,00	570	170	28	28	74	40	
	Elective Courses (Block 1)			6,00	228	80			40	40	
1	Data Analytics	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
2	Generative Models in Machine Learning (advanced course)	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
3	Deep Learning	E	базовая кафедра ПАО Сбербанк "Финансовые технологии и анализ данных"	6,00	228	80			40	40A	
4	Deep Learning Methods in Natural Sciences	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
5	Combinatorial Optimization	E	Joint Department with Yandex	6,00	228	80			40	40A	
6	Computer Networks	E	базовая кафедра Тинькофф	6,00	228	80			40	40A	
7	Machine learning in applied problems	E	базовая кафедра МТС	6,00	228	80			40	40A	
8	Time Series Modeling	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
9	Java Programming	E	Joint Department with Yandex	6,00	228	80			40	40A	
10	Process-mining	E	базовая кафедра ПАО Сбербанк "Финансовые технологии и анализ данных"	6,00	228	80			40	40A	
11	Recommender Systems	E	базовая кафедра Тинькофф	6,00	228	80			40	40A	
12	Stochastic Calculus	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
13	Topological data analysis	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
	Elective Courses (Block 2)			9,00	342	90	28	28	34		
1	Big Data in Macroeconomic Analysis	E	Department of Theoretical Economics	3,00	114	42		42A			
2	Introduction to Economics of Digital Platforms	E	Department of Applied Economics	6,00	228	56	28	28A			
3	Global value chains and competitiveness	E	Department of Applied Economics	3,00	114	40			40A		
4	Differential and Difference Equations	E	Department of Mathematics	6,00	228	56	28	28A			
5	Additional Chapters of Macroeconomics-2	E	Department of Theoretical Economics	3,00	114	28	14	14A			

6	Institutional Economics	E	Department of Applied Economics	6,00	228	54	26	28A			
7	Instrumental Methods for Digital Economics	E	Department of Mathematics	6,00	228	56	28	28A			
8	Exchange market infrastructure	E	базовая кафедра инфраструктуры финансовых рынков	3,00	114	28	28A				
9	Cooperative and Noncooperative Decision Making	E	Department of Mathematics	6,00	228	60	28	32A			Foreign language
10	Corporate Finance	E	Department of Finance	3,00	114	40			40A		Foreign language
11	International Trade	E	Department of Theoretical Economics	6,00	228	56	28	28A			Foreign language
12	International Financial Reporting Standards	E	Department of Finance	6,00	228	62		28	34A		Foreign language
13	International Finance	E	Department of Finance	3,00	114	30			30A		Online Course, Foreign language
14	Tail Risks and Global Economic Policy	E	Department of Theoretical Economics	3,00	114	14			14A		Foreign language
15	Industrial Organization	E	Department of Applied Economics	6,00	228	56	28	28A			Foreign language
16	Behavioral Economics	E	Department of Theoretical Economics	3,00	114	40			40A		Foreign language
17	Crime and Punishment: Economic and Social Studies of Law Enforcement)	E	Department of Applied Economics	6,00	228	48	24	24A			
18	Raising Capital in the Stock Market	E	базовая кафедра инфраструктуры финансовых рынков	6,00	228	56	24	32A			
19	Applied Market Design	E	Department of Theoretical Economics	3,00	114	36			36A		Foreign language
20	Decision Making in the Problems of Digital Economics under Risk and Uncertainty	E	Department of Mathematics	3,00	114	28			28A		
21	Private equity and venture capital, funding mechanisms and participants	E	базовая кафедра инфраструктуры финансовых рынков	3,00	114	28			28A		
22	Russian Economy-1	E	Department of Applied Economics	3,00	114	48				20	28A Online Course
23	Stochastic Processes	E	Department of Statistics and Data Analysis	6,00	228	56	28	28A			Online Course
24	Modern Methods of Data Analysis	E	Department of Mathematics	3,00	114	44				44A	
25	Socioeconomics	E	Department of Applied Economics	6,00	228	56	28	28A			
26	Industrial Policy: Modern Practices and Lessons	E	Department of Applied Economics	3,00	114	42			42A		
27	Recent Advances in Auction Theory	E	Department of Theoretical Economics	3,00	114	40			40A		Foreign language
28	Choice and Decision Theory	E	Department of Mathematics	6,00	228	60	28	32A			Foreign language

#	Course	Type	Department	Credits	Hours						Notes
29	Game Theory	E	Department of Theoretical Economics	6,00	228	56	28	28A			
30	Financial Stability and Financial Crises	E	Department of Theoretical Economics	3,00	114	32		32A			Foreign language
31	Financial Economics	E	Department of Finance	6,00	228	36	18	18A			Online Course, Foreign language
32	Financial Institutions and Risks	E	Department of Finance	3,00	114	54			54A		
33	Financial Markets	E	базовая кафедра инфраструктуры финансовых рынков	3,00	114	44			44A		
34	Digital Transformations in HR Management	E	Department of Applied Economics	3,00	114	40			40A		
35	Economics of Information	E	Department of Theoretical Economics	3,00	114	40			40A		Foreign language
36	Labour Economics	E	Department of Applied Economics	6,00	228	56	28	28A			
37	Economic Demography	E	Department of Demography	6,00	228	52		28	24A		
38	Economic History	E	Department of Theoretical Economics	3,00	114	40			40A		
39	Economic Growth and Development	E	Department of Applied Economics	3,00	114	32			32A		Foreign language
40	Economic Growth: Lessons from the Past	E	Department of Applied Economics	6,00	228	56	28	28A			Foreign language
	English					**2**			**2**		
	Examinations					**2**			**2**		
1	Independent English Exam	C	School of Foreign Languages			2			2A		Foreign language
	General Courses			**4,00**	**152**	**30**	**14**	**16**			
	Optional General Courses			**4,00**	**152**	**30**	**14**	**16**			
1	Philosophy	C	Школа философии и культурологии	4,00	152	30	14	16A			Online Course
	Internship			**5,00**	**190**	**2**				**2**	
	Project Internship			**5,00**	**190**	**2**				**2**	
1	Project	C		5,00	190	2			2A		

Curriculum agreed:

Academic Supervisor   SAMONENKO I.Y.   22.03.2024

Dean   PEKARSKIY S.E.   22.03.2024

Head of Centre for
 Educational Model Design   LEPESHKIN I.A.   26.04.2024

* Subject type:
Compulsory course   C
Elective course   E

Optional course   O