



National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 06.03.01 Biology

Educational Programme "Cognitive Neurobiology"

Implementing unit: Faculty of Biology and Biotechnology, HSE - Moscow

Years of Study: 2023/2024 - 2026/2027

Length of Programme: 4 years

Mode of Study: Full Time

Degree: Bachelor's degree

APPROVED
21.07.2023
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		149,00	51,00	33,00	41,00	24,00	
	Core Professional Block (Major)		82,00	45,00	26,00	5,00	6,00	
	Basic Components		82,00	45,00	26,00	5,00	6,00	
1	Biochemistry	C	5,00		5,00			GPC-2, PC-2, PC-3, PC-4, PC-8, UC-1, UC-2
2	Morphology and Histology of the Nervous System	C	5,00		5,00			GPC-1, PC-10, PC-13, PC-9, UC-1
3	Molecular Biology	C	4,00		4,00			GPC-1, PC-8, UC-1
4	Biophysics of Neural Processes	C	4,00		4,00			GPC-1, GPC-2, GPC-5, GPC-6, PC-1, PC-10, PC-11, PC-12, PC-13, PC-2, PC-3, PC-4, PC-6, PC-8, PC-9, UC-1
5	Neurohumoral Regulation	C	4,00		4,00			GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, GPC-6, GPC-7, GPC-8, PC-1, PC-10, PC-11, PC-12, PC-13, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, UC-1, UC-2
6	Differential Equations	C	5,00			5,00		GPC-1, PC-1, UC-1
7	Neurochemistry	C	6,00				6,00	GPC-1, PC-10, PC-12, PC-9, UC-1
8	Human Anatomy and Physiology	C	7,00	7,00				GPC-1, PC-1, PC-13, PC-2, PC-5, UC-1
9	Invertebrate Zoology	C	3,00	3,00				GPC-1, GPC-4, PC-1, UC-1, UC-2
10	Vertebrate Zoology	C	3,00	3,00				GPC-1, PC-1, UC-1, UC-2
11	Linear Algebra	C	4,00	4,00				GPC-1, GPC-6, GPC-8, PC-1, UC-1, UC-2
12	Mathematical Analysis with the Basics of Differential Equations	C	7,00	7,00				GPC-1, GPC-2, GPC-6, PC-1, UC-1, UC-2

13	Organic Chemistry	C	5,00	5,00				GPC-1, GPC-5, GPC-6, GPC-8, PC-1, UC-2
14	Cell Biology: the Basics of Bioprocesses	C	7,00	7,00				GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, GPC-6, GPC-7, GPC-8, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, UC-1, UC-2
15	General and Inorganic Chemistry	C	6,00	6,00				GPC-5, GPC-6, PC-1, PC-2, UC-1, UC-2
16	Phylogeny of the Nervous System	C	3,00	3,00				GPC-1, GPC-3, GPC-4, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-7, UC-9
17	Probability Theory and Mathematical Statistics	C	4,00		4,00			GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, PC-1, PC-2, PC-3, PC-4, PC-5, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6, UC-7, UC-8, UC-9
Elective Professional Block (Major)			67,00	6,00	7,00	36,00	18,00	
Basic Profile Part			30,00		4,00	20,00	6,00	
1	Genetics	C	4,00		4,00			GPC-1, GPC-3, GPC-5, PC-1, PC-2, PC-5, UC-1
2	Neurophysiology of development and its disorders	C	5,00			5,00		GPC-1, PC-10, PC-8, UC-1
3	Biophysics	C	3,00			3,00		GPC-1, PC-6, PC-8, UC-1
4	Modeling of Behavioral and Neuronal Processes	C	4,00			4,00		GPC-1, PC-10, PC-11, PC-12, PC-13, PC-9, UC-1
5	Cognitive and Affective Processes	C	4,00			4,00		GPC-1, PC-10, PC-11, PC-12, PC-13, PC-9, UC-1
6	Introduction to Computer Science and Programming	C	4,00			4,00		GPC-1, PC-10, PC-11, PC-12, PC-13, UC-1
7	Applied Neuroscience	C	6,00				6,00	GPC-1, PC-10, PC-11, PC-12, PC-13, UC-1
Elective Disciplines, 3rd Year			12,00			12,00		
1	Research methods and data analysis for cognitive neuroscience	E	4,00			4,00		GPC-1, PC-10, PC-11, PC-12, PC-13, UC-1
2	Advanced Behavioural Genetics	E	4,00			4,00		GPC-3, GPC-5, PC-1, PC-13, PC-2, PC-5, UC-1, UC-11
3	Psychology and Psychophysiology of Sports	E	4,00			4,00		GPC-2, GPC-7, PC-10, PC-13, PC-8, UC-1
4	Artificial Neural Networks and Machine Learning	E	4,00			4,00		GPC-1, GPC-7, PC-1, PC-10, PC-11, PC-12, PC-13, PC-2, PC-9, UC-1
Elective disciplines, 4th year			12,00				12,00	
1	Clinical Psychophysiology	E	6,00				6,00	GPC-2, GPC-8, PC-10, PC-13, PC-8, UC-1, UC-11
2	Modern Methods of Neuroimaging	E	6,00				6,00	GPC-1, GPC-7, PC-10, PC-11, PC-12, PC-13, PC-9, UC-1
3	Speech and Language Psychology and Neurophysiology	E	6,00				6,00	GPC-2, GPC-7, PC-1, PC-10, PC-12, PC-13, PC-8, UC-1
Research seminar			13,00	6,00	3,00	4,00		

1	Scientific research Seminar "Management of Scientific Projects"	C	3,00		3,00			GPC-1, PC-1, PC-10, PC-11, PC-12, PC-13, PC-2, PC-9, UC-1
2	Research seminar "Introduction to Computer Science and Programming"	C	4,00			4,00		GPC-1, PC-10, PC-11, PC-12, PC-13, PC-9, UC-1
3	Research seminar "Introduction to Experimental Science"	C	6,00	6,00				GPC-1, GPC-3, GPC-5, GPC-7, GPC-8, PC-10, PC-11, PC-12, PC-13, PC-9, UC-1, UC-10, UC-11, UC-2, UC-3, UC-4, UC-9
	Internship		41,00	3,00	3,00	6,00	29,00	
	Professional Internship		7,00	3,00			4,00	
1	Educational Internship (Introductory Training)	C	3,00	3,00				GPC-1, GPC-2, GPC-4, GPC-5, GPC-6, GPC-7, GPC-8, PC-1, PC-4, PC-5, PC-6, PC-8, UC-1, UC-11, UC-2, UC-3, UC-7, UC-8
2	Work Experience Internship	C	4,00				4,00	GPC-1, GPC-2, GPC-6, GPC-7, GPC-8, PC-1, PC-10, PC-11, PC-12, PC-13, PC-9, UC-1, UC-2
	Project Internship		16,00		3,00	6,00	7,00	
1	Research or Applied Project	C	16,00		3,00	6,00	7,00	GPC-1, PC-1, PC-12, PC-13, UC-1
	Research Internship		18,00				18,00	
1	Graduation Internship	C	4,00				4,00	GPC-1, PC-10, PC-11, PC-12, PC-13, UC-1
2	Preparation of Graduation Thesis	C	14,00				14,00	GPC-1, GPC-2, GPC-3, GPC-4, GPC-5, GPC-6, GPC-7, GPC-8, PC-1, PC-10, PC-11, PC-12, PC-13, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, UC-1
	General Courses		17,00	6,00	5,00	3,00	3,00	
	Core General Courses		2,00	1,00	1,00			
1	Safe Living Basics	C	1,00	1,00				GPC-1, PC-7, UC-1, UC-4, UC-6, UC-7
2	Physical Training	C	1,00		1,00			GPC-1, PC-1, UC-7, UC-8
	Optional General Courses		15,00	5,00	4,00	3,00	3,00	
1	Law	C	3,00				3,00	GPC-1, GPC-5, GPC-8, PC-9, UC-10, UC-2, UC-6
2	Economics	C	3,00	3,00				GPC-7, PC-1, UC-10, UC-5, UC-6, UC-9
3	Foundations of Russian Statehood	C	2,00	2,00				UC-10, UC-3, UC-4, UC-5
4	Russian History	C	4,00		4,00			UC-1, UC-10, UC-5, UC-9
5	Philosophy	C	3,00			3,00		GPC-1, GPC-3, GPC-5, PC-1, PC-3, PC-5, PC-7, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-7
	Minor		20,00		10,00	10,00		
1	Minor	E	20,00		10,00	10,00		GPC-1, PC-1, UC-1
	English		1,00				1,00	
	Examinations		1,00				1,00	
1	Independent English Exam	C						GPC-1, PC-1, UC-1
2	Project Proposal	C	1,00				1,00	GPC-1, GPC-2, PC-1, PC-2, UC-1, UC-2

3	English Language Integrative Exam (offered in a foreign language)	C					GPC-1, PC-1, UC-1, UC-6
Optional Courses							
1	English Language (offered in a foreign language)	O	14,00	8,00	6,00		GPC-1, PC-1, UC-6
2	Academic Writing in English (taught in English) (offered in a foreign language)	O	2,00			2,00	GPC-1, GPC-3, GPC-5, PC-1, PC-3, PC-9, UC-1, UC-10, UC-11, UC-2, UC-3, UC-4, UC-5, UC-6, UC-7, UC-8, UC-9
Data Culture							
1	Data Scientist with Python	C	3,00		3,00		GPC-1, PC-1, UC-1
2	Bioinformatics	C	5,00		5,00		GPC-1, GPC-2, GPC-3, GPC-6, GPC-7, GPC-8, PC-1, UC-1, UC-11, UC-2, UC-3, UC-6, UC-9
3	Independent Data Science Test. Intermediate	C	1,00		1,00		GPC-1, PC-1, UC-1
4	Independent Programming Test. Intermediate	C					GPC-1, PC-1, UC-1
5	Independent Digital Literacy Test	C					GPC-1, PC-1, UC-1
Final State Certification (FSC)							
			3,00			3,00	
Thesis Work							
			3,00			3,00	
1	Presenting of Graduation Thesis	C	3,00			3,00	GPC-1, PC-1, UC-1
State Examinations							

Curriculum agreed:

Academic Supervisor	MARTYNOVA O.V.	19.07.2023
Dean	TONEVITSKIY A.G.	19.07.2023
Head of Centre for Educational Model Design	LEPESHKIN I.A.	21.07.2023

* Subject type:

Compulsory course	C
Elective course	E
Optional course	O