



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: 2022/2023 - 2025/2026

Length of Programme: 4 years

Mode of Study: Full Time

Degree: Bachelor's degree

APPROVED  
04.08.2022  
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)		79,00	42,00	26,00	5,00	6,00	
	Basic Components		79,00	42,00	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	Probability Theory and Mathematical Statistics	C	4,00		4,00			GPC-1, PC-1, UC-1
4	Molecular Biology	C	4,00		4,00			GPC-1, PC-8, UC-1
5	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
6	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
7	General and Inorganic Chemistry	C	5,00	5,00				GPC-1, GPC-6, PC-1, UC-1
8	Cell Biology: the Basics of Bioprocesses	C	5,00	5,00				GPC-1, GPC-2, PC-1, PC-2, PC-3, PC-4, PC-6, PC-8, UC-1, UC-8
9	Organic Chemistry	C	4,00	4,00				GPC-1, PC-1, UC-1
10	Differential Equations	C	5,00			5,00		GPC-1, PC-1, UC-1
11	Neurochemistry	C	6,00				6,00	GPC-1, PC-10, PC-12, PC-9, UC-1
12	Linear Algebra	C	6,00	6,00				GPC-1, GPC-6, GPC-8, PC-1, UC-1, UC-2

13	Calculus	C	5,00	5,00				GPC-1, GPC-2, GPC-6, PC-1, UC-1, UC-2
14	Fundamentals of Cytology	C	3,00	3,00				GPC-1, PC-1, UC-1
15	Human Anatomy and Physiology	C	4,00	4,00				GPC-1, PC-1, PC-13, PC-2, PC-5, UC-1
16	Invertebrate Zoology	C	5,00	5,00				GPC-1, GPC-4, PC-1, UC-1, UC-2
17	Vertebrate Zoology	C	5,00	5,00				GPC-1, PC-1, UC-1, UC-2
Elective Professional Block (Major)			70,00	9,00	7,00	36,00	18,00	
Basic Profile Part			30,00		4,00	20,00	6,00	
1	Genetics (offered in a foreign language)	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			16,00	9,00	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 "Biological Law"	C	3,00	3,00				GPC-1, GPC-7, PC-7, UC-1, UC-10, UC-11, UC-3, UC-4, UC-5, UC-6
3	Research seminar "Introduction to Experimental Science"	C	3,00	3,00				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

4	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
5	Research seminar "Topical Issues of Cognitive Neuroscience"	C	3,00	3,00				GPC-1, PC-10, PC-11, PC-12, PC-13, PC-8, UC-1, UC-11
	Internship		43,00	4,00	6,00	5,00	28,00	
	Professional Internship		10,00	4,00	3,00		3,00	
1	Educational Internship (Introductory Training)	C	4,00	4,00				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	Educational Internship (offered in a foreign language)	C	3,00		3,00			GPC-1, GPC-2, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, PC-8, UC-1, UC-10, UC-2, UC-3, UC-6, UC-7
3	Work Experience Internship	C	3,00				3,00	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		15,00		3,00	5,00	7,00	
1	Research or Applied Project	C	15,00		3,00	5,00	7,00	GPC-1, PC-1, PC-12, PC-13, UC-1
	Research Internship		18,00				18,00	
1	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
2	Graduation Internship	C	4,00				4,00	GPC-1, PC-10, PC-11, PC-12, PC-13, UC-1
	General Courses		14,00	5,00	1,00	4,00	4,00	
	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		12,00	4,00		4,00	4,00	
1	Disciplines of the general cycle at the choice of students	E	4,00			4,00		GPC-1, PC-1, UC-1
2	Economics	C	4,00	4,00				GPC-7, PC-1, UC-10, UC-5, UC-6, UC-9
3	Law	C	4,00				4,00	GPC-1, GPC-5, GPC-8, PC-9, UC-10, UC-2, UC-6
	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	Academic Writing (offered in a foreign language)	O	2,00				2,00	GPC-1, GPC-2, PC-1, PC-2, UC-1, UC-2

2	English Language (offered in a foreign language)	O	14,00	8,00	6,00		GPC-1, PC-1, UC-6
	Data Culture		10,00		10,00		
1	Data Scientist with Python	C	3,00		3,00		GPC-1, PC-1, UC-1
2	Bioinformatics	C	6,00		6,00		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	External Examinations on Digital Skills. Entry-level	C					GPC-7
6	External Examinations on Digital Skills. Intermediate Level	C					GPC-7
7	External Examinations on Digital Skills. Final Level	C					GPC-7
8	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. 03.08.2022

Dean TONEVITSKIY A.G. 03.08.2022

Head of Centre for Educational Model Design LEPESHKIN I.A. 04.08.2022

\* Subject type:

Compulsory course C

Elective course E

Optional course O