



Basic Curriculum

Field of study 01.04.02 Applied Mathematics and Informatics
 Educational Programme "Data Analysis for Biology and Medicine"
 Trajectories: "Data Analysis in Biology and Medicine"
 Implementing unit: Faculty of Computer Science, HSE - Moscow

APPROVED
 25.05.2023
 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	
	Data Analysis in Biology and Medicine (General track)		120,00	60,00	60,00	
	Key Seminars		15,00	9,00	6,00	
1	Mentor's Seminar "Data Analysis in Biology and Medicine"	C	15,00	9,00	6,00	GPC-4.AMI, PC-1, PC-10, PC-4, PC-8, PC-9, UC-6
	Internship		18,00	6,00	12,00	
	Research Internship		18,00	6,00	12,00	
1	Term paper	C	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, 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
2	Graduation Thesis	C	12,00		12,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, 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
	Major		69,00	39,00	30,00	
	1 year 1 semester		21,00	21,00		
1	Machine Learning in Bioinformatics (offered in a foreign language)	E	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, UC-2, UC-4, UC-6
2	R Programming	E	6,00	6,00		GPC-3.AMI, PC-2, PC-3, PC-4, UC-1, UC-6
3	Molecular Biology	E	6,00	6,00		GPC-3.AMI, PC-10, PC-9, UC-3

4	Applied Bioinformatics	E	6,00	6,00		GPC-1.AMI, GPC-4.AMI, PC-3, PC-4, PC-7, PC-9, UC-1, UC-6
5	Computing Infrastructure in Bioinformatics Problems	E	3,00	3,00		GPC-1.AMI, PC-1, PC-3, PC-4, UC-6
1 year 2 semester			18,00	18,00		
1	Applied Statistics	E	3,00	3,00		GPC-3.AMI, PC-10, UC-6
2	Algorithms in Bioinformatics	E	3,00	3,00		GPC-1.AMI, GPC-4.AMI, PC-1, PC-4, PC-5, PC-6, PC-9, UC-2, UC-6
3	Comparative Genomics	E	3,00	3,00		GPC-4.AMI, PC-1, PC-4, PC-9, UC-6
4	Deep Learning	E	6,00	6,00		GPC-3.AMI, PC-4, PC-5, PC-6, PC-7, UC-1
5	Population Models in Genomics (offered in a foreign language)	E	3,00	3,00		GPC-4.AMI, PC-1, PC-4, PC-9, UC-6
course 2			30,00		30,00	
1	Bioinformatics for Next Generation Sequencing (offered in a foreign language)	E	6,00		6,00	GPC-4.AMI, PC-1, PC-4, UC-6
2	Structural Bioinformatics and Drug Design	E	6,00		6,00	GPC-2.AMI, PC-1, PC-10, PC-3, UC-6
3	Systems Biology and Personalized Medicine	E	6,00		6,00	GPC-4.AMI, PC-1, PC-10, PC-3, UC-2, UC-6
4	Methods for modeling the 3-D structure of proteins	E	6,00		6,00	GPC-2.AMI, GPC-4.AMI, PC-1, PC-10, PC-4, PC-8, UC-2, UC-6
5	Molecular Modeling	E	6,00		6,00	GPC-4.AMI, PC-1, PC-10, PC-4, PC-8, UC-6
Magolego			15,00	6,00	9,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	6,00	9,00	GPC-4.AMI, PC-4, UC-5, UC-6
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-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

Curriculum agreed:

Academic Supervisor	POPTSOVA M.S.	10.05.2023
Dean	ARZHANTSEV I.V.	10.05.2023
Head of Centre for Educational Model Design	LEPESHKIN I.A.	24.05.2023

* Subject type:

Compulsory course

C

Elective course

E