Master Program in Life Sciences
(Molecular Biosciences, Neurosciences)

Course Title	ECTS	Contact hours	Prerequisites	1 Semester	2 Semester	3 Semester	4 Semester	Instructor	Course Status
General block - 30 credits									
Academic Writing	6	34				X		M. Dgebuadze	**obl.**
Main principles of cellular regulation	6	33		X				D. Mikeladze N. Narmania	**obl.**
Biochemistry of Systems and Metabolomics	6	51		X				L. Shanshiashvili M. Kikvidze D. Mikeladze	**obl.**
Fundamentals of Synaptic Transmission and Molecular and Physiological Mechanisms of Memory	6	32			X			E. Lepsveridze R. Solomonia	**obl.**
Favorite Chapters of Molecular Biology	6	66		X				R. Solomonia E. Tevdoradze	**obl.**
Molecular Biosciences - 60 credits (Mandatory courses - 30 credits; Elective courses - 30 credits*)									
Functional Neuroanatomy	6	32		X				M. Zhvania	**obl.**
Biochemistry of Neural Tissue	6	42			X			R. Solomonia L. Shanshiashvili	**obl.**
Molecular Basis of Neuropathologies	6	62				X		R. Solomonia E. Lepsveridze M. Kokaia	**obl.**
Molecular Biology Research Methods, Protein Interaction, Interactomics and Mass-Spectrometry	6	66	Favorite Chapters of Molecular Biology		X			E. Tevdoradze R. Solomonia Z. Khuchua	**obl.**
Gene expression regulation and basics of epigenetics	6	54			x			R. Solomonia E. Tevdoradze	**obl.**
Nanoscience: Principles of Nanobiology and Nanomedicine	6	34		X		X		M. Zhvania	elect.
Viruses of Microbes - Model system in Molecular Biology	6	38			x			E. Tevdoradze	elect.
Molecular Pharmacology	6	46	Main principles of cellular regulation		X			E. Zhuravliova	elect.
Apoptosis and Cell Proliferation	6	34			X			L. Shanshiashvili M. Kikvidze	elect.

Course	Credits	Hours	Prerequisites				Professor	Type
Biotechnological Approaches	6	47	Favorite Chapters of Molecular Biology		X		N. Datukishvili I. Kechakmadze	elect.
Molecular immunology	6	38			x		L. Shanshiashvili	elect.
Statistics for Biologists		44		X		x	D. Tarkhnishvili	
Basics of R and Statistics for Ecologists	6	44			x		L. Mumladze	elect.
Applied Statistics using R software		32		x		x	A. Gavashelishvili	
Cell Physiology	6	32		X		X	G. Gamkrelidze	elect.
Modeling of Human Genetics Diseases and Study of Pathophysiological Mechanisms	6	34	Biochemistry of Systems and Metabolomics; Favorite Chapters of Molecular Biology			X	Z. Khuchua	elect.
Introduction to programming for bioinformatics	6	48	Statistics for Biologists		X		V. Lagani	elect.
ბიოინფორმატიკის მეთოდები (ENG)	6	66	Introduction to programming for bioinformatics			X	V. Lagani	elect.
Special Course in English Language for Bio Scientists	6	47		X		X	M. Sepashvili	elect.
Molecular Neuroanatomy	6	32	Functional Neuroanatomy; Favorite Chapters of Molecular Biology		X		M. Zhvania	elect.
Design of Medicines and Deliberate Supply	6	34		x		x	L. Shanshiashvili	elect.
Molecular Toxicology	6	32	Biochemistry of Systems and Metabolomics	x		x	E. Zhuravliova	elect.

Neurosciences - 60 credits
(Mandatory courses - 42 credits;
Elective courses - 18 credits*)

Course	Credits	Hours	Prerequisites				Professor	Type
Laboratory Work: Experimental Research Methods and Skills -1	6	46		X			N. Lortkipanidze T. Basishvili M. Eliozishvili	**obl.**
Laboratory Work: Experimental Research Methods and Skills -2	6	48			X		N. Lortkipanidze T. Basishvili M. Eliozishvili	**obl.**
Favorite Chapters of General Neurophysiology	6	34		X			M. Gogichadze N. Oniani	**obl.**
Integrated Action of Brain 1	6	32			X		N. Oniani N. Darchia T. Basishvili	**obl.**
Integrated Action of Brain 2	6	32				X	N. Oniani N. Darchia T. Basishvili	**obl.**
Neurobiology of Sleep-Wakefulness Cycle	12	62				X	N. Oniani M. Gogichadze	**obl.**

Course	Credits	Hours	Prerequisite	S1	S2	S3	S4	Instructor	Type
Functional Neuroanatomy	6	32				X		M. Zhvania	elect.
Statistics for Biologists		44		X		x		D. Tarkhnishvili	
Basics of R and Statistics for Ecologists	6	44			x			L. Mumladze	elect.
Applied Statistics using R software		32		X		x		A. Gavashelishvili	
pain, Opiate and Addiction	6	32	Favorite Chapters of General Neurophysiology		X			T. Basishvili	elect.
Molecular Pharmacology	6	46	Main principles of cellular regulation		X			E. Zhuravliova	elect.
Mental Disorders	6	32				X		N. Darchia T. Basishvili	elect.
Sleep disorders, Sleep and Health	6	32	Favorite Chapters of General Neurophysiology			X		N. Darchia T. Basishvili	elect.
Biochemistry of Neural Tissue	6	42			X			R. Solomonia L. Shanshiashvili	elect.
Special Course in English Language for Bio Scientists	6	47				X		M. Sepashvili	elect.
Gene expression regulation and basics of epigenetics	6	54			x			R. Solomonia E. Tevdoradze	elect.
Master's Thesis - 30 credits									
Master's Thesis	30		1. Academic Writing ; 2. Molecular Biology Research Methods, Protein Interaction, Interactomics and Mass-Spectrometry**; *or* Laboratory Work: Experimental Research Methods and Skills -1 and 2***				X		**obl.**

* Out of 6 credits, as part of the program the student can choose from the existing elective courses within the program as well as courses from other graduate programs.

** for Molecular Biosciences

*** for Neuroscience