

1.	Field of study	Biotechnology
2.	Faculty	Faculty of Natural Sciences
3.	Academic year of entry	2025/2026 (winter term)
4.	Level of qualifications/degree	first-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time
7.	Academic year for which the revised course structure applies	2025/2026

Programme modules								year 1						year 2						year 3					
								semester 1			semester 2			semester 3			semester 4			semester 5			semester 6		
No.	Module	Lang.	E/C	form of teaching			Total ECTS	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E
				Total	L	O																			
1	Plan your educational path	–	C	5	5		0	5																	
2	Animal biodiversity	–	C	30		30	3		30	3															
3	Basics of biostatistics	–	C	15		15	1		15	1															
4	Basics of microscopy	–	C	15		15	1		15	1															
5	General chemistry	–	E	45	15	30	4	15	30	4															
6	Group of optional modules in the semester I <i>*[see description below]</i>	*	*	30		30	2		30	2															
7	Introduction to the structure of eukaryotic organisms	–	E	75		75	5		75	5															
8	Mathematics in the natural sciences	–	E	45	15	30	4	15	30	4															
9	Plant biodiversity	–	C	30	9	21	3	9	21	3															
10	Principles of genetics	–	E	45		45	4		45	4															
11	Spectrophotometry with elements of good laboratory practice	–	C	45		45	3		45	3															
12	Cell biology in biotechnology	–	E	75		75	6					75	6												
13	Genetic analysis	–	E	30	15	15	3				15	15	3												
14	Group of optional modules in the semester II <i>*[see description below]</i>	*	*	30		30	2					30	2												
15	Information technology in natural science	–	C	30		30	3					30	3												
16	Organic chemistry	–	E	45	15	30	4				15	30	4												
17	Structural biochemistry	–	C	30	10	20	3				10	20	3												
18	Biophysics for biotechnologists	–	C	60	15	45	4							15	45	4									
19	In vitro cultures in biotechnology	–	C	60	15	45	4							15	45	4									
20	Introduction to programming for biotechnologists	–	C	30		30	3								30	3									
21	Metabolism	–	E	90	20	70	6							20	70	6									
22	Microbiology	–	E	90	30	60	6							30	60	6									
23	Principles of animal physiology	–	C	45	15	30	4							15	30	4									
24	Molecular genetics	–	E	45	15	30	3										15	30	3						
25	Plant physiology with elements of biotechnology	–	E	75	16	59	5										16	59	5						
26	Principles of biotechnology	–	E	85	30	55	6										30	55	6						
27	Bioprocess engineering	PL	C	60	22	38	4													22	38	4			
28	Bsc laboratory I	–	C	30		30	2														30	2			
29	Bsc seminar I	–	C	15		15	1														15	1			
30	Genetic engineering	–	C	75	15	60	5													15	60	5			
31	Group of optional modules in the semester V <i>*[see description below]</i>	*	*	60	10	50	6										10	50	6						
32	Molecular mechanisms of plant development	–	E	45	5	40	4										5	40	4						

Programme modules											year 1						year 2						year 3					
							form of teaching			semester 1			semester 2			semester 3			semester 4			semester 5			semester 6			
No.	Module	Lang.	E/C	Total	L	O	Total ECTS	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E			
33	Principles of bioinformatics	–	C	30		30	2														30	2						
34	Biotechnology methods in environmental protection	PL	E	60	15	45	4																15	45	4			
35	Bsc laboratory II	–	C	30		30	2																	30	2			
36	BSc laboratory II	–	C	15		15	1																	15	1			
37	Generative reproduction of plants and experimental embryology	–	C	20	6	14	2																6	14	2			
38	Group of optional modules in the semester VI <i>*[see description below]</i>	*	*	120		120	12																	120	12			
39	Molecular mechanisms of animal and human development	–	E	45	15	30	3																15	30	3			
TOTAL Programme modules:				1805	328	1477	140	44	336	30	40	200	21	95	280	27	61	144	14	52	263	24	36	254	24			
Programme co-related modules											year 1						year 2						year 3					
							form of teaching			semester 1			semester 2			semester 3			semester 4			semester 5			semester 6			
No.	Module	Lang.	E/C	Total	L	O	Total ECTS	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E			
1	The area of “Civil Society and Entrepreneurship: Entrepreneurship”	–	C	30		30	3					30	3															
2	Group of programme co-related modules <i>*[see description below]</i>	*	*	60		60	6					30	3					30	3									
3	The area of “Civil Society and Entrepreneurship: Vade mecum on Law”	–	C	30		30	3											30	3									
TOTAL Programme co-related modules:				120		120	12	0	0	0		60	6	0	0	0		60	6	0	0	0	0	0	0	0		
Open access modules											year 1						year 2						year 3					
							form of teaching			semester 1			semester 2			semester 3			semester 4			semester 5			semester 6			
No.	Module	Lang.	E/C	Total	L	O	Total ECTS	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E			
1	Physical education	–	C	60		60	0					30			30													
2	English language course 1	EN	C	30		30	3					30	3															
3	English language course 2	EN	C	30		30	3								30	3												
4	English language course 3	EN	C	30		30	3											30	3									
5	Open University Module	–	C	120		120	12											30	3		30	3		60	6			
6	English language course 4	EN	C	30		30	3												30	3								
TOTAL Open access modules:				300		300	24					60	3		60	3		60	6		60	6		60	6			
Internship											year 1						year 2						year 3					
							form of teaching			semester 1			semester 2			semester 3			semester 4			semester 5			semester 6			
No.	Module	Lang.	E/C	Total	L	O	Total ECTS	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E			
1	Internship	PL	C	160		160	4											160	4									
TOTAL Internship:				160		160	4											160	4									
TOTAL:				2385	328	2057	180	380	30	360	30	435	30	485	30	375	30	350	30									
TOTAL EXCLUDING INTERNSHIPS								2225																				
TOTAL								2385																				

The study ends with the awarding of a Bachelor's Degree in the field of Biotechnology.

* Groups of modules

Group of optional modules in the semester V

Description:					
The student chooses course modules from among the optional modules for a certain number of ECTS credits.					
Modules:	Lang.	E/C	L	O	ECTS
Animal scientific procedures	–	C	5	25	2
Basics of endocrinology	–	C	10	20	3
Basics of immunology	–	C	15	15	3
Basics of nanobiotechnology	–	C		30	3
Bionics	–	C		30	3
Biotechnology in practices	PL	C		30	3
Continuous cultures in biotechnology	–	C		30	3
Enzymology	–	C	15	45	4
From experiment to model - selected examples from the plant world	–	C		30	3
Fungi in biotechnology	–	C		45	3
Histological techniques	–	C		30	2
Hormonal regulation of plant growth and development	–	C	10	50	4
Industrial microbiology	–	C	15	45	4
Insects in biotechnology	–	C		30	3
Instrumental analysis in biotechnology	–	C	15	45	4
Introduction to pathophysiology	–	C	15	30	3
Micropropagation of plants	–	C		25	1
Model organisms	–	C		15	1
Mutagenesis	–	C	15	45	4
Parasitology and parasitological diagnostics	–	C		30	2
Pests of crop plants	–	C		15	1
Phytoremediation	–	C	15	15	2
Plant cytogenetics	–	C	7	43	4
Plant resistance	–	C		60	4
Techniques for assessment of membrane permeability	–	C	4	26	2
Techniques of plant tissues analysis	–	E	5	25	2
Toxicology	–	C	15	30	3
Tutor project I	–	C		30	3
Utility plants	–	C	10	20	2
Work in a project	–	C		30	3
Xenobiotics in the environment	–	C		35	3

Group of optional modules in the semester VI

Description:					
The student chooses course modules from among the optional modules for a certain number of ECTS credits.					
Modules:	Lang.	E/C	L	O	ECTS
Animal scientific procedures	–	C	5	25	2
Basics of endocrinology	–	C	10	20	3
Basics of immunology	–	C	15	15	3

Basics of nanobiotechnology	–	C		30	3
Bionics	–	C		30	3
Biotechnology in practices	PL	C		30	3
Enzymology	–	C	15	45	4
From experiment to model - selected examples from the plant world	–	C		30	3
Fungi in biotechnology	–	C		45	3
Histological techniques	–	C		30	2
Hormonal regulation of plant growth and development	–	C	10	50	4
Industrial microbiology	–	C	15	45	4
Instrumental analysis in biotechnology	–	C	15	45	4
Introduction to pathophysiology	–	C	15	30	3
Micropropagation of plants	–	C		25	1
Model organisms	–	C		15	1
Mutagenesis	–	C	15	45	4
Parasitology and parasitological diagnostics	–	C		30	2
Pests of crop plants	–	C		15	1
Phytoremediation	–	C	15	15	2
Plant cytogenetics	–	C	7	43	4
Plant resistance	–	C		60	4
Techniques for assessment of membrane permeability	–	C	4	26	2
Techniques of plant tissues analysis	–	E	5	25	2
Tutor project I	–	C		30	3
Utility plants	–	C	10	20	2
Work in a project	–	C		30	3
Xenobiotics in the environment	–	C		35	3

Group of optional modules in the semester I

Description:						
A student selects one of the modules offered within a group of modules						
Modules:	Lang.	E/C	L	O	ECTS	
Chemical fundamentals of life processes	–	C	10	20	2	
Theories of modern biology	–	C		30	2	

Group of optional modules in the semester II

Description:						
A student selects one of the modules offered within a group of modules						
Modules:	Lang.	E/C	L	O	ECTS	
Ecology for biotechnology	–	C		30	2	
Human anatomy	–	C	10	20	2	
Introduction to environmental science	–	C	15	15	2	
Methods of field research	–	C	6	24	2	

Group of programme co-related modules

Description:						
A student selects one of the modules offered within indicated areas						

Modules:	Lang.	E/C	L	O	ECTS
Module in the "Civil Society and Entrepreneurship" area	–	C		30	3
Module in the "Creative Expression and Critical Thinking" area	–	C		30	3
Module in the "Digital World" area	–	C		30	3
Module in the "Health and Personal Development" area	–	C		30	3
Module in the "Natural Environment and Technologies" area	–	C		30	3
Module in the "The Limits of Science" area	–	C		30	3

Legend

Each semester consists of 15 weeks

E/C - exam/course work

E - ECTS

L - lecture, O - all forms of teaching excluding lecture (practical classes, laboratory classes, discussion classes, seminar, proseminar, language classes, field practice, workshop, internship, tutoring)