

# STRUCTURE OF THE STUDY PROGRAM

**Table 4.1.** Course Distribution by Term and Year of Study for Academic Programs (AS)

Serial number	Course Code	Course Title	Term	Weekly Number of Classes		ECTS
				I	II	
<b>FIRST YEAR OF STUDIES</b>						
1	22NBI11A010	General and Inorganic Chemistry	I	3	3	6
2	22NBI11A020	Mathematics I	I	3	3	6
3	22NBI11A030	Biophysics	I	3	2	5
4	22NBI11A040	Cytology and Histology	I	2	2	5
5	22NBI11A050	English for Specific Purposes I	I	2	2	4
6	22NB11A0X0	Elective Course	I	2	2	4
7	22NBI12A010	Organic Chemistry	II	3	3	5
8	22NBI12A020	Biostatistics	II	3	2	5
9	22NBI12A030	Physical Chemistry	II	3	3	5
10	22NBI12A040	Introduction to Engineering	II	2	2	5
11	22NBI12A050	English for Specific Purposes II	II	2	2	4
12	22NB12A060	Sport and Physical Activities	II	0	2	2
13	22NBI12B0X0	Elective Course	II	2	2	4
<b>Total number of classes (lectures/seminars) and ECTS per year</b>				<b>495</b>	<b>345</b>	<b>60</b>

Serial number	Course Code	Course Title	Term	Weekly Number of Classes		ECTS
				I	II	
<b>SECOND YEAR OF STUDIES</b>						
1	22NBI13A010	Materials Science	III	3	2	6
2	22NBI13A020	Biochemistry I	III	3	3	7
3	22NBI13A030	Natural Product Chemistry	III	3	2	6
4	22NBI13A040	General Microbiology	III	3	3	7
5	22NBI13B0X0	Elective Course	III	2	2	4
6	22NBI14A010	Industrial Microbiology	IV	3	3	5
7	22NBI14A020	Laboratory Techniques, Methods and Instrumentation	IV	2	2	4
8	22NBI14A030	Biochemistry II	IV	3	3	6
9	22NBI14A040	Introduction to Bioinformatics	IV	2	3	5
10	22NBI14A050	Microbial Biochemistry	IV	3	2	6
11	22NBI14B0X0	Elective Course	IV	2	2	4
<b>Total number of classes (lectures/seminars) and ECTS per year</b>				<b>450</b>	<b>360</b>	<b>60</b>

Serial number	Course Code	Course Title	Term	Weekly Number of Classes		ECTS
				I	II	
III ГОДИНА						
1	22NBI15A010	Fundamentals of Genetics	V	3	2	5
2	22NBI15A020	Biotechnology	V	3	3	6
3	22NBI15A030	Probiotics and Starter Cultures	V	3	2	5
4	22NBI15A040	Methods of Separation	V	3	2	5
5	22NBI15A50	Genetically Modified Raw Materials	V	3	2	5
6	22NBI15B0X0	Elective Course	V	2	2	4
7	22NBI16A010	Genetic Engineering	VI	3	2	7
8	22NBI16A020	Bromatology	VI	3	2	6
9	22NBI16A030	Fundamentals of Biochemical Engineering	VI	3	3	7
10	22NBI16A040	Protein Engineering	VI	3	2	6
11	22NBI16B0X0	Elective Course	VI	2	2	4
<b>Total number of classes (lectures/seminars) and ECTS per year</b>				<b>420</b>	<b>360</b>	<b>60</b>

Serial number	Course Code	Course Title	Term	Weekly Number of Classes		ECTS
				II	B	
<b>FOURTH YEAR OF STUDIES</b>						
1	22NBI17A010	Experimental Biochemistry	VII	3	3	7
2	22NBI17A020	Quality Management	VII	3	3	7
3	22NBI17A030	Biocosmetic Materials	VII	3	2	6
4	22NBI17A040	Transport Phenomena in Biological Systems	VII	3	3	6
5	22NBI17B0X0	Elective Course	VII	2	2	4
6	22NBI18A010	Pharmaceutical Product Technology	VIII	3	3	6
7	22NBI18A020	Safety and Protocol in Biochemical Laboratory	VIII	2	2	5
8	22NBI18B0X0	Elective Course	VIII	2	2	4
9	22NBI18A030	Bachelor's Thesis	VIII	0	0	15
<b>Total number of classes (lectures/seminars) and ECTS per year</b>				<b>345</b>	<b>300</b>	<b>60</b>

**Table 4.2.** Elective Courses within the Study Program

<b>Type of Elective Course</b>	<b>Number</b>
Elective courses from the List of Elective Courses proposed by the unit	21

Serial number	Course Code	Course Title	Term	Weekly Number of Classes		ECTS	From Which Unit
				Lectures	Seminars		
1.	22NBI11B010	Contemporary Macedonian Language	I	2	2	4	FTS
2.	22NBI11B020	Contemporary Albanian Language	I	2	2	4	FTS
3.	22NBI11B030	Laboratory Management	I	2	2	4	FTS
4.	22NBI11B040	Laboratory Calculations	I	2	2	4	FTS
5.	22NBI11B050	Globalization and Intercultural Communication	I	2	2	4	FTS
6.	22NBI12B010	Communication Skills	II	2	2	4	FTS
7.	22NBI12B020	Legislation and Accreditation	II	2	2	4	FTS
8.	22NBI12B030	Biochemical Ecology	II	2	2	4	FTS
9.	22NBI12B040	Biomaterials	II	2	2	4	FTS
11.	22NBI13B010	Sample Preparation for Analysis	III	2	2	4	FTS
12.	22NBI13B020	Bioethics	III	2	2	4	FTS
13.	22NBI13B010	Design of Experiments	IV	2	2	4	FTS
13.	22NBI14A020	Healthy Food and Nutrition	IV	2	2	4	FTS
14.	22NBI15B010	Chemistry of Heterocyclic Compounds	V	2	2	4	FTS
15.	22NBI15B020	PCR-Based Methods	V	2	2	4	FTS

16.	22NBI16B010	Analysis of Water, Air and Soil	VI	2	2	4	FTS
17.	22NBI16B020	Waste Management	VI	2	2	4	FTS
18.	22NBI17B010	Fundamentals of Management	VII	2	2	4	FTS
19.	22NBI17B020	Phytoremediation	VII	2	2	4	FTS
20.	22NBI18B010	Occupational Safety and Health	VIII	2	2	4	FTS
21.	22NBI18B020	Food Control	VIII	2	2	4	FTS
				<b>Total:</b>			FTS