Attachment No. 3		Course program for the first cycle of studies			
1.	Course title	Biology			
2.	Code	DMMBL1			
3.	Study program	Dentistry - integrated first and second cycle of studies			
4.	Organizer of the study program (unit, i.e., institute, department, division)	University "Ss. Cyril and Methodius" in Skopje, Faculty of Natural Sciences and Mathematics - Skopje, Institute of Biology			
5.	Degree (first, second, third cycle)	Integrated first and second cycle studies			
6.	Academic year/semester	Year	1	Semester	1
7	Course workload expressed in ECTS credits	5			
8.	Teacher	Prof. Dr. Icko Gjorgoski			
9.	Language in which the curriculum is conducted	English			
10.	Necessary prerequisites for taking and passing the course	None			
11.	Course objectives (competences) and learning outcomes:	To enable students in the first year of studies to get acquainted with the fundamentals of life, the diversity of living organisms, the basic organization of the cell, its structure, its communication with other cells and with the environment, as well as with the control of the cell cycle. On the other hand, students will be able to get acquainted with the basics of molecular biology and the gene techniques and methods used in modern biotechnological processes. During the course, the student will get the chance to master the basic techniques of microscopy, isolation of genetic material, as well as its laboratory processing. Knowledge of the organization and functioning of cells at the molecular level will facilitate students' understanding of the processes that occur as the cause of diseases, as well as the possibility of using modern technologies for the treatment of conditions that students will encounter in other subjects during their studies.			
12.	Detailed course content by chapter and units, with the learning outcomes for each chapter	Theoretical teaching - lectures 1. Chapter: Molecular Foundations of Life Method unit Biology as a science - 3 classes Method unit The nature of molecules and properties of water -3 classes Method unit Chemical building blocks of living organisms - 3 classes Learning outcomes: Familiarity with the basis of life, chemical structure, and diversity of living organisms 2. Chapter: Biology of the Cell Method unit Cell structure - 3 classes Method unit Biomembranes - 3 classes Method Unit Energy and Metabolism - 3 classes Method unit How cells get energy - 3 classes Method Unit Cellular Communication - 3 classes Method unit How cells divide - 3 classes			

		Learning outcomes: With the basic organization of the cell, its structure, its communication with other cells and with the environment, as well as with the control of the cell cycle. 3. Chapter: Genetics and Molecular Biology Method unit Sexual reproduction and meiosis - 3 classes Method Unit Inheritance patterns -3 classes Method Unit Chromosomes and Inheritance - 3 classes Method unit DNA: Genetic material - 3 classes Method unit Genes and how they work - 3 classes Method unit Biotechnology - 3 classes Learning outcomes: with the basics of genetics and molecular biology and gene techniques and methods used in modern biotechnological processes. Total: .....45 classes Practical teaching - exercises - Molecular foundations of life.....6 classes - Biology of the cell.....12 classes - Genetics and molecular biology.....12 classes Total .....30 classes			
13	Interrelation of subjects	Connection to Anatomy, Biochemistry, and Physiology			
14.	Detailed description of the teaching and working methods for the subject	Interactive teaching, laboratory or clinical exercises, working in small groups, presenting and performing laboratory procedures, demonstrating used instruments and methods, and teamwork.			
15.	Total Available Time	150 classes			
16.	Forms of teaching activities	16.1.	Lectures - theoretical teaching. Classes	45	
		16.2.	Exercises (laboratory, auditorium), seminars, teamwork: classes	30	
		16.3.	Practice: classes		
17.	Other forms of activities	17.1.	Project assignments: classes		
		17.2.	Independent assignments: classes		
		17.3.	Home study - assignments	75	
18	Signature requirements	Attendance of 60% of exercises and 60% of lectures			
19	Method of grading				
	19.1.	Tests: points		12-20	
	19.2.	Seminar work/project, written and oral presentation: points		9-15	
	19.3.	Final exam: points		39-65	
20	Evaluation criteria (points/grade)	up to 59 points	5 (five) (F)		
		60 to 68 points	6 (six) (E)		
		69 to 76 points	7 (seven) (D)		
		77 to 84 points	8 (eight) (C)		
		85 to 92 points	9 (nine) (B)		
		93 to 100 points	10 (ten) (A)		
21.	Method of monitoring the quality of teaching	Self-evaluation by students, assistant control during the practical teaching and assessment of the achieved student success, as well as the pass rate of students who have passed the subject			
22.	Literature				
	22.1.	Required literature			
		Ord. number	Author	Title	Publisher	Year
		1.	Gjorgoski, I., et al.	Biology for Dentists	PMF - Skopje	2020
		2.	Albert et al.	Essential Biology	Garland Pub. New York&London	2014
		3.	Mason K. et al.	Biology	Arberia Design	2017
	22.2.	Additional literature				

		Ord. number	Author	Title	Publisher	Year
		1.	Snustad and Simmons	Principles of Genetics	Arberia Design	2017
		2.	Stankovikj Zh. et al.	Biology with human genetics	Codex, Nish	2007