

Attachment No.3		Course program for the first cycle of studies			
1.	Course title	Medical chemistry			
2.	Code	DMMMC1			
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 Medicine - Skopje Department of Medical Chemistry			
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	3			
8.	Teacher (in case of multiple teachers, designated teacher in charge)	Prof. Dr. Svetlana Cekovska			
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:	The student acquires knowledge about the chemical structure of biomolecules, chemical and energetic changes during their transformations, basic concepts of general chemistry, and knowledge about the classification of organic compounds according to the functional groups they possess.			
12.	Detailed course content by chapter and units, with the learning outcomes for each chapter	Theoretical teaching - lectures Chapter: General Chemistry Bioelements..... 1 Class Ionic, covalent, coordinate relationship, intermolecular forces (hydrogen, Van der Waals, induced dipole-dipole)1 class Solutions, quantitative composition, colligative properties of solutions, strong and weak electrolytes (dissociation), acid theories, Hydrogen index, pH scale 2 classes Buffers. Biologically important buffers.....1 class Basic laws of thermodynamics.....1 class Chemical kinetics.....1 class Oxidation and Reduction.....1 class Chapter: Organic Chemistry Chemistry of carbon atom, alkanes, alkenes, alkynes, cycloalkanes...2 classes Aromatic hydrocarbons, alcohols, phenols, polyphenols...1 class Carbonyl compounds (ketones, aldehydes, and carboxylic acids)2 classes Heterocyclic organic compounds.....2 classes Total:15 classes Learning outcomes of the first chapter - General Chemistry: Students will be introduced to the biologically important elements and their medical significance, the basic types of intramolecular and intermolecular chemical bonds, the way of expressing the concentration of solutions, the basic theories of acid bases, the notion of pH (hydrogen index) and pH scale, the mechanism of functioning of biologically important buffers, the basic laws of thermodynamics and the factors that affect the speed of reactions and the significance of redox reactions for living organisms. Learning outcomes of the second chapter - Organic Chemistry: Students will be introduced to the method of classification of organic compounds based on functional groups, the basic types of reactions in organic chemistry, and the biological significance and interrelationship of the basic classes of organic compounds.			

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		Ord. number	Author	Title	Publisher	Year
		1.	Krstevska Marija, Alabakovska Sonja, Efremova Aaron Snezhana, Labudovikj Danica, Cekovska Svetlana	General and organic chemistry for medical students	Faculty of Medicine, UKIM Skopje	Skopje, 2014
		2.	Bogdanska Jasna, Bosilkova Gordana, Juliana Brezovska- Kavrakova, Krstevska Marija, Labudovikj Danica, Topuzovska Sonja, Tosheska Trajkovska Katerina, Cekovska Svetlana	"Exercise Practicum in Medical Chemistry for Dental Students"	Faculty of Medicine, UKIM Skopje	Skopje, 2020
22.2.	Additional literature					
		Ord. number	Author	Title	Publisher	Year
		1.				

Attachment No. 3		Course program for the first cycle of studies				
1.	Course title	Biochemistry				
2.	Code	DMMBC1				
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 Medicine - Skopje, Department of Biochemistry and Clinical Biochemistry				
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	7				
8.	Teacher (in case of multiple teachers, designated teacher in charge)	Teacher in charge Prof. Dr. Irena Kostovska *Teaching is performed by all members of the department				
9.	Language in which the curriculum is conducted	English				
10.	Necessary prerequisites for listening and taking the class	Passing the exam in Medical Chemistry is a prerequisite for taking the final exam in Biochemistry				
11.	Course objectives (competences) and learning outcomes:	The main objective of the subject program is that after completing the lectures and passing the exam, the students should have acquired a basic understanding of biomolecules, their properties, and role in the structure of cells and organs in the human organism, as well as the metabolic processes in a healthy person. The acquired knowledge will be the basis for understanding the basic molecular processes in the cell, as well as for understanding the pathological changes.				
12.	Detailed course content by chapter and units, with the learning outcomes for each chapter	Theoretical teaching - lectures 1. Amino acids, peptides, proteins: Structure and function of proteins, protein folding and misfolding, hemoglobin, myoglobin; compounds derived from amino acids, nucleoproteins - 7 classes 2. Carbohydrates, homoglycans, heteroglycans - 3 classes				