

STUDY PROGRAMME				
1	Course title	BIOCHEMISTRY		
2	Code	DBH102		
3	Study programme	Study Program of Integrated studies in dental medicine		
4	Study program organizer (unit, institute, cathedra,, department)	UKIM-Medical Faculty- Skopje, Department of biochemistry and clinical biochemistry		
5	Cycle (1 st , 2 nd , 3 rd)	Integrated studies		
6	Academic year / semester	1 st year, 1 semester	7	No of ECTS credits 7
7	Teacher	Head of Department prof. Jasna Bogdanska *The teaching is performed by all members of the Department		
8	Prerequisites for enrolling the course	/		
9	<ul style="list-style-type: none"> The main objective of the training programme is to enable the student to identify different classes of biomolecules, their structure and function and the way these classes of biomolecules are metabolized. 			
10	Course content:			
	Theoretical lectures			hours
	Amino acids, peptides, proteins: structure and function of proteins, folding of proteins, haemoglobin, myoglobin; compounds derived from aminoacids, nucleoproteins			7
	Carbohydrates, homoglycans, heteroglycans			3
	Lipids, Lipids as depot material, lipid as constituents of cell membranes, signalling molecules, cofactors and pigments			3
	Biochemistry of hormones			4
	Vitamins			3
	Enzymes and cofactors			6
	Introduction of metabolism			1
	Metabolism of proteins			4
	Metabolism of carbohydrates			4
	Metabolism of lipids			4
	Citric acid cycle			1
	Oxidation and respiratory chain			1
	Metabolism of haemoglobin			2
	Metabolism of water and inorganic elements			1
	Metabolism of body fluids			1
	Total			45
	Practice			hours
	Introduction in biochemical laboratory analysis: laboratory safety rules, specimen collection and processing, basic biochemical methods, reference values, principles of photometry method			3
	Qualitative analysis of carbohydrates, lipids and proteins			3
	Enzymes – quantification of the enzyme activity, optimal pH and optimal temperature			3
	Diagnostic significance of enzymes			3
	Quantification of serum total proteins			3
	Quantification of total cholesterol and triglycerides in serum			3

	Quantification of blood sugar		3
	Quantification of blood degradation products: urea and creatinine		3
	Quantification of serum inorganic phosphate and calcium		3
	Urine analysis		3
	Total		30
11	Methods of learning: interactive (theoretical), work in small groups (practical) and other forms according ECTS criteria		
12	Total available time	210 hours	
13	Allocation of time	Theoretical lectures-45 hours, practise- 30, home learning and other forms of activities- 135 hours	
14	Forms of teaching activities	15.1.	Lectures – theoretical 45 hours
		15.2.	Practices (laboratory, auditory, seminars, teamwork) 30 hours
15	Other forms of activity	16.1.	Projects
		16.2.	Independent tasks 30
		16.3.	Home learning 105
16	Method of assesment	17.1.	Test min.-max. 12-20
		17.2.	Active participation during theoretical and practical hours ; Seminars /project (presentation: written and oral) Theory min.-max. 1-3 Practical (presence and active participation) min.-max. 10-12* *Student has the right of absence from max.of 2 classes
		17.3.	Final (oral) exam Final exam: Practical knowledge min.-max. 9-15 Final exam: Theoretical knowledge min.-max. 30-50
17	Grading criteria(points/grading)	up to 59 points 5 (five) (F)	
		from 60 to 67 points 6 (six) (E)	
		from 68 to 75 points 7 (seven) (D)	
		from 76 to 84 points 8 (eight) (C)	
		from 85 to 93 points 9 (nine) (B)	
		from 94 to 100 points 10 (ten) (A)	
18	Requirement for signing and taking the final exam	The student is required to actively follow all of the planned activities. Conditional criteria for assessment of knowledge: In order to get a signature, the student should obtain minimum points in both theoretical and practical courses; In order to take the final exam, the student should obtain the minimum points from activity and test;	

		If the student has not obtained the minimum points in the continual assessment, he/she will be obligated to pass them with the final exam.				
19	The language in which it is performed	Macedonian				
20	Method of monitoring the quality of teaching	Self-evaluation by students, evaluation of the competence of teaching assistants and assessment of student achievement, as well as passing of students who passed the course				
21	Literature					
	22.1.	Compulsory literature				
		No.	Authors	Title	Publisher	Year
		1.	Sloboda Dzekova-Stojkova et al.	Biochemistry	Medical Faculty, UKIM, Skopje	2010
	2.	Labudovic Danica, Topuzovska Sonja, Bogdanska Jasna, Efremova Aaron Snezana, Cekovska Svetlana, Tosheska-Trajkovska Katerina, Kavrakova Julijana, Kostovska Irena	Booklet for biochemistry for students of dental medicine	Medical Faculty, Skopje	2019	
	22.2.	Additional literature				
No.		Authors	Title	Publisher	Year	
1.		Lieberman M, Marks A.	Marks Basic Medical Biochemistry	Lippincott Williams and Wilkins	2012	