

1.	Subject	BIOCHEMISTRY		
2.	Code	DA – 117		
3.	Study program:	Three-year professional studies for graduate obstetricians		
4.	Conducted by	UKIM – Medical faculty Department of biochemistry		
5.	Degree of education (first or second cycle)	First		
6.	Academic year/semester	I/I	7.	Credits 2
8.	Professor	Chair of the Department of Biochemistry: Prof. Jasna Bogdanska *the classes are held by all the members of the departments		
9.	Prerequisite			
10.	Goals	After completing the Biochemistry classes, the students will understand the basic principles of pre-analytical, analytical and post-analytical phase of laboratory biochemistry practice and the role of the obstetrician in it; They will learn the basic analyses of blood and urine and will understand the results of the biochemistry analyses of the same; They will be able to understand and explain the influence of different factors on the results; They will learn the interpretation of the most relevant biochemical and hematologic parameters in clinical biochemistry which are connected to their work.		
11.	Content summary:	<p>Theoretical lessons: Laboratory diagnostics, clinical biochemistry: Organization of laboratory services; Phases of laboratory analysis; Preparation of the patient for obtaining biological material for analysis; Types of biological material and taking biological material for laboratory analysis; Working with biological material; Recommended procedures for taking, keeping, transferring and transporting of the material; Factors that influence the results of the laboratory analyses; Interpretation of the results/meaning of the normal or reference ranges; Dry chemistry analyzer and its use in clinical biochemistry (tests for analysing urine content, pregnancy test, drug test); Clinical biochemistry of a kidney and biochemical tests for monitoring renal illnesses, Diabetes mellitus: type 1 and type 2 and gestational diabetes, recommended parameters for diagnosing and monitoring; Acid-Base disorders, meaning of gas analyses, recognition of the primary acid-base disorders and changes in the electrolyte status, Clinical enzymology, blood enzymes as indicators for damage in specific organs. Lipid profile and methods for determining the biochemical parameters which constitute the lipid status, Complete blood analysis and sedimentation of erythrocytes; Blood proteins, importance and function of plasma proteins, Methods for determining proteins; Hormones, methods for determining hormones and their importance.</p> <p>Practical lessons: Biological material: blood, serum, plasma, reference ranges, photometric methods; Determining blood proteins; Determining blood glucose, glucose tolerance test; Qualitative urine analysis (with test strips; relative density and sediment; presence of albumins in sulfur-salicylic acid); Lipid status, determining total cholesterol and tryglycerides; Non-protein nitrogen compounds: urea and creatinin; Tests for pregnancy and drugs in urine; Blood analysis.</p>		
12.	Teaching methods:	Lectures, interactive laboratory classes, home learning		
13.	Total classes:	75		
14.	Organization	Theoretical lessons: 25 classes Practical lessons: 25 classes Learning at home 25 classes		

15.	Types of teaching activities		15.1	Lessons: theoretical classes	25
			15.2	Practical lessons (laboratory, clinical), seminars, team work	25
16.	Other types of activities		16.1	Papers	
			16.2	Self-supporting practice	
			16.3	Learning at home	25
17.	Knowledge assesment		Points		
	17.1	Final exam	Anatomy: Min.-max. Written points 42 - 70		
	17.3	Paper/project (written and oral presentation)	Min.-Max.		
	17.4	Active participation	Min. – Max. Points Teoretical lessons 1 - 5 Practical lessons 15 - 25		
18.	Grading criterion (points/grades)	Up to 59 points	5 (five) F		
		From 60 to 68 points	6 (six) E		
		From 69 to 76 points	7 (seven) D		
		From 77 to 84 points	8 (eight) C		
		From 85 to 92 points	9 (nine) B		
		From 93 to 100 points	10 (ten) A		
19.	Requirements for obtaining a signature and attending the final examination	To obtain a signature, the student must gain minimum points from visiting the theoretical and practical lessons. The final grade for the subject is formed according to the table for grading, and is based on the sum of the points from all the activities, mid-term exams and final exam.			
20.	Language	Macedonian			
21.	Method of evaluating the quality of the lessons	Anonymous student evaluation of the subject, the professors and the collaborators who hold the lessons.			
22.	Literature				
	22.1	Mandatory literature			
		1.	B.Straus, Medical Biochemistry, Medicinska Naklada, Zagreb, 1992		
		2.	Autorized lectures from the Departments and lecturers		
		3.	S.Alabakovska, J.Bogdanska, G.Bosilkova, M.Gerakarovska, S.A.Efremova, J.Kavrakova, P.Korneti, I.Kostovska, M.Krstevska, D.Labudovikj, K.T.Trajkovska, S.Cekovska, Practicum for practical lessons of biochemistry for students of general medicine, Medical Faculty – Skopje, 2016		

	22.2	Additional literature	
		1.	Majkicj Singh N. Medical biochemistry DMB Srbija, 2006