

School of Pharmacy / School of Pharmacy (English)

2024 - 2025 Academic Year

BIOCHEMISTRY

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
BIOCHEMISTRY	PHA2213092	Spring Semester	3+0	3	4
Prerequisites Courses	ORGANİK KİMYA II				
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Required				
Course Coordinator	Assist.Prof. Rashida Muhammad UMAR				
Name of Lecturer(s)	Assist.Prof. Rashida Muhammad UMAR				
Assistant(s)					
Aim	Recognition of organic molecules and elements in the human organism, explaining their metabolism and energy formation, associating systems that control metabolism, exemplifying pathological conditions related to metabolisms.				
Course Content	This course contains; The Molecular Meaning Of Life,Biochemical perspective on blood,Structure and metabolism of carbohydrates,Evaluation of carbohydrates in the biochemistry laboratory,Structural features and metabolism of lipids,Evaluation of lipids in the biochemistry laboratory,Biochemical perspective on atherosclerosis,Structure of protein and amino acids,Evaluation of proteins and amino acids in the biochemistry laboratory,Vitamins,Enzymes and laboratory evaluation,Hormones and laboratory evaluations,Minerals and laboratory evaluations,Body fluids and urine.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
1. Explains general terms related to biochemistry and biochemical events occurring in the cell, the definition of biochemistry, the general definition of biochemical molecules and reactions, and the professional and clinical importance of biochemistry.			10, 16, 19, 21, 9	C, G	
2. Explains the structure and functions of carbohydrates, their importance in the human body, general properties and classification of carbohydrates, chemical properties and definition of carbohydrates.			10, 16, 19, 21, 9	C, G	
3. Explains carbohydrate metabolism and the relationship between these pathways, carbohydrate digestion and absorption events and carbohydrate metabolism, glycogen metabolism through pathways such as glycogen synthesis and degradation, and energy production through electron transport and oxidative phosphorylation.			10, 16, 19, 21, 9	C, G	
4. Explains the structure, functions and role of proteins in metabolism, the properties of amino acids, their chemical reactions, structures such as peptides and polypeptides, the properties of proteins, and the classification of proteins.			10, 16, 19, 21, 9	C, G	
5. Explains the structure, functions and general properties of enzymes, common features of enzymes, their naming and classification, and the function of enzymes in metabolic pathways.			10, 16, 19, 21, 9	C, G	
6. Explains the structure of lipids, their function in metabolic pathways and their importance in the human body, classification of lipids, structure of fatty acids and their derivatives, digestion and absorption of lipids, fatty acid metabolism and beta oxidation.			10, 16, 19, 21, 9	C, G	
7. Explains the functions and importance of vitamins and minerals in metabolic reactions in living organisms, the classification and structures of vitamins, types of minerals, their importance for the human body, and the role of vitamins and minerals in metabolism.			10, 16, 19, 21, 9	C, G	
8. Remembers the functioning of the clinical biochemistry laboratory, preventing sample collection and preanalytical errors, laboratory organization, rules and safety, analysis methods used in biochemistry, sample collection and pre-analysis variables.			10, 16, 19, 21, 9	C, G	
Teaching Methods	10: Discussion Method, 16: Question - Answer Technique, 19: Brainstorming Technique, 21: Simulation Technique, 9: Lecture Method				
Assessment Methods	C: Multiple-Choice Exam, G: Quiz				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	The Molecular Meaning Of Life	Reference 1,2,3			
2	Biochemical perspective on blood	Reference 1,2,3			
3	Structure and metabolism of carbohydrates	Reference 1,2,3			
4	Evaluation of carbohydrates in the biochemistry laboratory	Reference 1,2,3			
5	Structural features and metabolism of lipids	Reference 1,2,3			
6	Evaluation of lipids in the biochemistry laboratory	Reference 1,2,3			
7	Biochemical perspective on atherosclerosis	Reference 1,2,3			
8	Structure of protein and amino acids	Reference 1,2,3			
9	Evaluation of proteins and amino acids in the biochemistry laboratory	Reference 1,2,3			
10	Vitamins	Reference 1,2,3			
11	Enzymes and laboratory evaluation	Reference 1,2,3			
12	Hormones and laboratory evaluations	Reference 1,2,3			
13	Minerals and laboratory evaluations	Reference 1,2,3			
14	Body fluids and urine	Reference 1,2,3			
Evaluation Methods		Weight(%)			
Midterm Exam		40			
General Exam		60			

Resources

1. Prof. Dr. Nesrin Emekli -Basic and Applied Biochemistry,2006 Akademi Publications, (Available in Medipol University Library)2. Prof. Dr. Türkan Yiğitbaşı and Prof. Dr. Nesrin Emekli. Biochemistry Laboratory for Students, Medipol Publications 2013.
3. Lippincott Illustrated Reviews: Biochemistry 7th