School of Health Sciences / Nursing

2023 - 2024 Academic Year

BIOCHEMISTRY

Syllabus

Course Description					
Name	**Code**	**Semester**	**T+A Hour**	**Credit**	**ECTS**
BIOCHEMISTRY	HEM2160200	Fall Semester	2+0	2	3

Prerequisites Courses	
Recommended Elective Courses	
Language of Instruction	Turkish
Course Level	First Cycle (Bachelor's Degree)
Course Type	Required
Course Coordinator	Res.Assist. Feyza BAYRAMOĞLU
Name of Lecturer(s)	Res.Assist. Feyza BAYRAMOĞLU
Assistant(s)	
Aim	To describe all the chemical reactions taking place in a cell at molecular level and to explain the changes that occur in these reactions in pathologic conditions.
Course Content	This course contains; Introduction to Biochemistry – Structure of atom,Carbohydrates,Carbohydrate metabolism,Glycolysis, Krebs, ETZ,Proteins,Enzymes – Structure of metabolism,Degradation of proteins and amino acid,Lipids,Digestion and absorption of lipids, beta oxidation,Fatty acid oxidation,Catabolism,Vitamins and minerals,Hormons,How does works Clinical Biochemistry laboratory?, Sample collection and storage.

Course Learning Outcomes	**Teaching Methods**	**Assessment Methods**
Explains general terms related to biochemistry	10, 16, 9	A
Describes the structure and functions of carbohydrates	10, 16, 9	A
Explains carbohydrate metabolism	10, 16, 9	A
Describes the structure and functions of proteins	10, 16, 9	A
Describes the structure and functions of enzymes	10, 16, 9	A
Explains the structure of lipids, their function in metabolic pathways and their importance in the human body	10, 16, 9	A
Explains the functions and importance of vitamins and minerals in metabolic reactions in living organisms	10, 11, 16, 6, 9	A, E
Explains the analysis methods used in biochemistry	10, 16, 9	A

Teaching Methods	10: Discussion Method, 11: Demonstration Method, 16: Question - Answer Technique, 6: Experiential Learning, 9: Lecture Method
Assessment Methods	A: Traditional Written Exam, E: Homework

Lecture Schedule

Sequence	**Topics**	**Preliminary Preparation**
1	Introduction to Biochemistry – Structure of atom	Section 1,2 of the 1st source - Section 14 of the 2nd source - Section 1 of the 3rd source - Section 1,2 of the 4th source - Section 1,2 of the 5th source - Section 1 of the 7th source
2	Carbohydrates	Chapter 14 of the 2nd source - Chapter 9,20 of the 3rd source - Chapter 9,15,16 of the 4th source - Chapter 2 of the 5th source - Chapter 3,6 of the 7th source
3	Carbohydrate metabolism	Chapter 14 of the 2nd source - Chapters 9,15,16,20 of the 4th source - Chapter 2 of the 5th source - Chapters 3,6 of the 7th source
4	Glycolysis, Krebs, ETZ	Chapter 14 of the 2nd source - Chapters 9,15,16,20 of the 4th source - Chapter 2 of the 5th source - Chapters 3,6 of the 7th source
5	Proteins	Chapter 14 of the 2nd source - Chapters 5,6,7 of the 4th source - Chapter 2 of the 5th source - Chapter 4 of the 7th source
6	Enzymes – Structure of metabolism	Chapter 14 of the 2nd source - Chapter 8 of the 4th source - Chapter 2 of the 5th source - Chapter 5 of the 7th source
7	Degradation of proteins and amino acid	2.kaynağın 14.bölümü - 4.kaynağın 5,6,7.bölümü - 5.kaynağın 2.bölümü - 7.kaynağın 4.bölümü
8	Lipids	Chapter 14 of the 2nd source - Chapters 5,6,7 of the 4th source - Chapter 2 of the 5th source - Chapter 4 of the 7th source
9	Digestion and absorption of lipids, beta oxidation	Chapter 14 of the 2nd source - Chapters 11,17,21 of the 4th source - Chapter 2 of the 5th source - Chapter 7 of the 7th source
10	Fatty acid oxidation	Chapter 14 of the 2nd source - Chapters 11,17,21 of the 4th source - Chapter 2 of the 5th source - Chapter 7 of the 7th source
11	Catabolism	Chapter 14 of the 2nd source - Chapters 1,2,3 of the 4th source - Chapter 2 of the 5th source - Chapter 3 of the 7th source
12	Vitamins and minerals	14th chapter of the 2nd source - 5th chapter of the 5th source - 10th chapter of the 7th source
13	Hormons	Chapter 14 of the 2nd source - Chapter 23 of the 4th source - Chapter 4 of the 5th source - Chapter 9 of the 7th source
14	How does works Clinical Biochemistry laboratory?, Sample collection and storage	5,6 of the 1st source - 1,4,13 of the 2nd source - 1,4,20,21,22 of the 3rd source

Evaluation Methods	**Weight(%)**
Midterm Exam	40
General Exam	60

Resources
1. Kilinik Biyokimya, Prof. Dr. Nesrin EMEKLİ; Doç. Dr. Türkan Yiğitbaşı, Medipol Üniversitesi 2. Öğrenciler İçin Biyokimya Laboratuvarı 3.Baskı, Prof. Dr. Nesrin EMEKLİ; Doç. Dr. Türkan Yiğitbaşı, Medipol Üniversitesi 3. Klinik Biyokimya El Kitabı (Hematoloji ve Seroloji Laboratuvarları İlaveli), Yazar: İdris Mehmetoğlu, Yayınevi: Nobel Tıp Kitabevleri 4. Lehninger Biyokimyanın İkeleri, Yazarlar: David L. Nelson - Michael M. Cox, Yayınevi: PALME YAYINCILIK, Çeviri Editörü: Y. Murat Elçin, Basım Sayısı: Beşinci baskıdan çeviri 5. Harper Biyokimya, Yazar(lar): Murray, Bender, Weil, Botham, Kennely, Rodwell, Çeviri Editörü: Prof. Dr. Gül Güner Akdoğan, Prof.Dr. Biltan Ersöz, Prof. Dr. Nevbahar Turgan 6. Tietz Laboratuvar Testleri Klinik Kılavuzu, Yazar: Alan H. B. WU, Çeviri Editörü: Prof. Dr. Kaya EMERK 7. İnsan Biyokimyası, Marka: Palme Yayıncılık, Yazar: Prof. Dr. Taner ONAT