



YOZGAT BOZOK UNIVERSITY FACULTY OF ARTS AND SCIENCES
CHEMISTRY DEPARTMENT COURSE PLAN

Course Code	Course Title	Semester	Course Type (C/E)	T+A+L (Time/Week)	Credit	ECTS	Course Language
KİM471	Biochemistry-I	Spring	C	4+0+0	4	6	English

COURSE INFORMATION

Course Catalog Description (Content)	Comprehends the biophysical events necessary for the functioning of the living organism. Written and oral information about the basic topics of biochemistry can be transferred as understands the importance of biomolecules. Define carbohydrates, lipids and proteins, which provide the energy needs of the organism and form the building blocks of cells. To be able to comprehend the properties, classification and functions of enzymes and minerals, to evaluate the disorders that occur in the case of deficiency and excess of minerals.
The Aim of the Course	To be able to comprehend basic biochemistry information including biological molecules, carbohydrates, lipids, proteins, enzymes, minerals and their classification, physical and chemical properties and functions.
Course Level	Master
Course Language	English
Teaching method	(X) Formal () Online () Mixed/Hybrid
Teaching Staff of the Course	Prof. Dr. Mustafa SAÇMACI Prof. Dr. Ş.Hakan ÜNGÖREN Prof. Dr. İrfan KOCA Dr. Öğr. Üyesi İbrahim Evren KIBRIZ
Prerequisite Course(s) of the Course	-
Learning Outcomes from the Course	<ul style="list-style-type: none">-Comprehends the biophysical events necessary for the functioning of the living organism.-Written and oral information about the basic topics of biochemistry can be transferred-Understands the importance of biomolecules.-Define carbohydrates, lipids and proteins, which provide the energy needs of the organism and form the building blocks of cells.-To be able to comprehend the properties, classification and functions of enzymes and minerals, to evaluate the disorders that occur in the case of deficiency and excess of minerals

COURSE CONTENT

Week	Theory	Practice/Laboratory
1	Definition and subject of biochemistry, cell in biochemical events, functions, distribution and metabolism of water, solutions and properties	
2	History of cell biology, chemical components of the cell, fine structure of the cell, substance transport in the cell membrane, morphological differentiations in the plasma membrane, cytoplasm and endomembrane system, nucleus, mitochondria, plastids, ribosomes, lysosomes, cell division and cell cycle.	

3	Asymmetric carbon atom, stereoisomerism, optical activity, enantiomers, hemiacetal structure, B and a isomers, specific rotation.	
4	Osazone formation, effects of acids and alkalis on monosaccharides, enolization, reduction of sugars, oxidation products, amino and deoxy sugars, phosphate derivatives.	
5	Glycosides, properties of some monosaccharides, disaccharides, maltose and trehalose type glycosidic bonds, properties of maltose, lactose, sucrose and cellobiose, homo and heteropolysaccharides, structure and enzymatic degradation of starch, introduction of other polysaccharides	
6	Digestion of Carbohydrates	
7	Digestion and absorption of Carbohydrates	
8	Carbohydrate metabolism-I	
9	Carbohydrate metabolism-II	
10	Carbohydrate metabolism-III	
11	Carbohydrate metabolism disorders-I	
12	Carbohydrate metabolism disorders-II	
13	Nucleic acids	
14	Properties of DNA and RNA	
15	Final Exam	

Course Learning Resources

1. Champe PC, Harvey RA, Ferrier DR (2010). Biochemistry (Lippincott's Illustrated Reviews Series). Lippincott Williams & Wilkins.
2. Sözbilir NB, Bayşu N. (2008). Biyokimya. Öncü Basımevi, Ankara
- 2.
- 3.
- 4.

ASSESSMENT CRITERIA

Work Activities During the Semester	Number	Contribution
Homework	1	%30
Practice		
Forum/ Discussion Application		
Short Exam (Quiz)	2	%35
Ratio Of Semester Studies To Semester Success (%)		%40
Ratio of Final to Success (%)		%60
Total		%100

COURSE WORKLOAD TABLE

Activity	Total Weeks	Duration (Weekly Hours)	Total Workload
Theory	14	4	56
Practice			
Forum/ Discussion Application			
Reading	4	8	32

Internet Scanning, Library Study	14	2	28
Material Design, Application			
Report Preparation			
Presentation Preparation			
Presentation			
Final Exam	1	2	2
Preparation for the Final Exam	4	8	32
Other(s) (Specify:)			
Total Workload			
Total Workload / 25 (s)			150/25
ECTS Credits of the Course			150/25 \cong 6
Note: The workload of the course will be determined by the instructor on a per-course basis.			

PROGRAM LEARNING OUTPUTS CONTRIBUTION LEVELS

No	Program Learning Outputs	1	2	3	4	5
1	Gains extensive knowledge about the basic chemical properties of matter and uses this knowledge in daily life, industrial scale, and practical chemistry and shares them with the society.					X
2	Performs experiments, collects data, interprets, evaluates results, defines problems parallel to current technological developments, produces solutions against problems encountered in the laboratory.	X				
3	Calculates and processes chemical information and data.			X		
4	Applies her/his knowledge and understanding of chemistry to the solution of unconventional qualitative and quantitative problems.				X	
5	Defines and comprehends chemical concepts and theories in Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Analytical Chemistry, Biochemistry.					X
6	Can conduct research in the light of scientific data on any subject in the field of chemistry.				X	
7	Writes, presents, discusses scientific material, and presents it orally to a knowledgeable audience.			X		
8	Brings a chemical approach to the solution of environmental problems, makes environmental analyzes and reports.		X			
9	Knows a foreign language at a level to read and understand the basic terms and processes of the chemist profession.			X		
10	Can use computer software and information and communication technologies at the level required by the field.		X			
11	Adapts and transfers the knowledge gained in the field to secondary education.			X		
12	Apart from the field of chemistry, she/he gains knowledge in different branches of science that she feels close to.		X			
13	Carries out a study independently, makes group work and gains the awareness of taking responsibility.					X
14	They can develop a positive attitude towards lifelong learning and constantly renew their professional knowledge and skills.			X		
15	Have sufficient awareness of the universality of social rights, social justice, quality culture and protection of cultural values, environmental protection, occupational health and safety.		X			