



MARMARA UNIVERSITY Faculty of Arts and Sciences

Chemistry Department

SYLLABUS

2016-2017 FALL

Course level: Lisans (First Cycle)

Course Code	Course Name	Course Type	Course Pool (if exists)	Weekly Course Hours		Local Credit	ECTS Credit	Semester
				T	A			
CHEM4185	Biochemistry I	Zorunlu		3		4	4	7

Prerequisite (Ders Kodu ve Adı, Min Harfli Başarı Notu)	Prerequisite to (Ders Kodu ve Adı, Min Harfli Başarı Notu)	Weekly Time & Classroom Schedule (Gün, Saat Aralığı, Derslik)
<Bu dersi bağlayan önceki derslerin kodu, adı, min hb> {Her bir dersi birbirinden noktalı virgülle ayırınız.}	<Bu dersin bağladığı sonraki derslerin kodu, adı, min hb> {Her bir dersi birbirinden noktalı virgülle ayırınız.}	

Course Lecturer	Doç. Dr. Özkan DANIŞ	Teaching Assistants	
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Office hour schedule		Office hour schedule	

Course Objectives	The main objective of the course is to investigate biochemical events in living cells at molecular level and to provide an introduction into the main topics of biochemistry, emphasizing on structure and function of the most important biochemical compounds.
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Textbooks and or References	Course Web page:	
	1.	Lehninger Principles of Biochemistry, 6th Edition, D. L Nelson, M.M. Cox, 2013

Course Learning Outcomes	1.	Be able to understand basic features of living things from the atom to molecule to the supramolecular structures.
	2.	Be able to describe the physico-chemical characteristics of biomolecules and their building blocks.
	3.	Be able to explain the role of enzymes in the catalysis of biochemical reactions.
	4.	Be able to describe information pathways that occur inside the cell.
	5.	Be able to comprehend the relationships between chemistry and the biological sciences.

Program Outcomes x Course Learning Outcomes Matrix	Program Outcomes															1:Weak; 2:Medium; 3:Strong
	PK1	PK2	PK3	PK4	PK5	PK6	PK7	PK8	PK9	PK10	PK11	PK12	PK13	PK14	PK15	Course Learning Outcomes
	3						2						2	3		
3						3						2	3			DK2. Be able to describe ...
3		3				2						2	3			DK3. Be able to explain t...
3												2		3		DK4. Be able to describe ...
3		3				2						2		3		DK5. Be able to comprehen...
	3	0	3	0	0	2	2	0	0	0	0	2	2	3	0	TOTAL EFFECT

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Language or Instruction	Learning Activities and Teaching Methods			Course Presentation Form				
	Lecture supported by power point slides, illustrations, blackboard notes and discussion.			Lecture supported by power point slides, illustrations, blackboard notes and discussion.				
Week	Date	Weekly Course Content			Reference No - Section			
1. Week		The Foundations of Biochemistry: Cellular, chemical, physical, genetic and evolutionary foundations						
2. Week		Water: Weak interactions, ionization, buffers						
3. Week		Amino Acids, Peptides, and Proteins I: Structure; Amino acids, peptides, Three Dimensional Structure, Denaturation						
4. Week		Amino Acids, Peptides, and Proteins II: Function; Hemoglobin, Immune system						
5. Week		Enzymes I: functions, structure and kinetics						
6. Week		Enzymes II: regulation and inhibition						
7. Week		Protein isolation and purification						
8. Week		Midterm Exam						
9. Week		Carbohydrates and Glycobiology I: Monosaccharide and Polysaccharide structures and functions						
10. Week		Carbohydrates and Glycobiology II: Glycoconjugates and Sugar code						
11. Week		Lipids: Storage Lipids, Structural Lipids, Lipids as signals and Pigments						
12. Week		Biological Membranes and Biosignalling: Membrane structure, transport systems, signal transduction						
13. Week		Nucleotides and Nucleic Acids: Structure, chemistry, function						
14. Week		Information Pathways I: Genes and Chromosomes, Replication						
15. Week		Information Pathways II: Transcription, Translation, Posttranslational Modifications						
16. Week		Study Week						
17. Week		Final Exam						
Evaluation Tool		YSSL (BDS)	BNAL (BDS)	BDKL (BDS)	Calculation of Grade			
Evaluation Tools and Weight %	Evaluation Tools	Quantity	Date	Weight in Total (%)	Weight in Semester Evaluation (%)			
	Final Exam			60.00	100.00			
	Final-Make up Exam (if exists)			60.00	100.00			
	Semester Evaluation Tools			40.00	100.00			
	Midterm Exam(s)			40.00	100.00			
	Quiz(es)							
	Project							
	Homework							
	Laboratory/Atelier							
	Presentation / Seminar / Demo							
	Research / Report / Other							
	Attendance							
Student Workload Calculation								
Tool	Weekly Avr. Hour	Semester Total Hour	Tool	Weekly Avr. Hour	Semester Total Hour	Tool	Weekly Avr.	Semester Total hour
Theoretical Hours	3.00	42	Midterm Exam and Preparation		20	Atelier and Preparation		
Applied Hours			Quiz and Preparation			Presentation/Seminar/Demo and Preparation		
Pre-class Self Study	1.00	14	Project and Preparation			Research/ Report/ Other and Preparation		
Pre-application/Post-application Self Study			Homework and Preparation			Final Exam and Preparation		20
Total Student Workload Hours:	96		1 ECTS Credit = 25 Student Workload Hours			Workload Calculation:	Hesap Doğru	