



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			
CHEM4186	Biochemistry II	Zorunlu		3	2	8	8	8

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 the principles of cellular metabolism, regulatory processes and synthesis of biological molecules.
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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 describe metabolic pathways that occur inside the cell.
	2.	Be able to comprehend metabolisms of carbohydrates, lipids, amino acids and nucleotides.
	3.	Be able to learn the integration of various aspects of metabolism and their regulatory pathways.
	4.	Be able to explain how the metabolism of nutrients leads to the generation of energy.
	5.	Be able to use current biochemical techniques to carry out experiments and analyze data using statistical methods.

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				1							3		DK1. Be able to describe ...
			2				1							3		DK2. Be able to comprehen...
	3		2				1							3		DK3. Be able to learn the...
	3		2				3							3		DK4. Be able to explain h...
				3	3	3					2	2		3		DK5. Be able to use curre...

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				3	0	2	3	3	
				3	2	0	0	0	
				2	2	0	3	0	
				TOTAL EFFECT					
Language of Instruction	Learning Activities and Teaching Methods				Course Presentation Form				
İngilizce	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		Bioenergetics and Biochemical Reaction Types							
2. Week		Vitamins, structure and functions as cofactors							
3. Week		Carbohydrate Metabolism I: Digestion, Glycolysis and Gluconeogenesis; foundations, reactions and enzymes							
4. Week		Carbohydrate Metabolism II: Regulation, integration and energy yield of glycolysis and gluconeogenesis							
5. Week		The pentose phosphate pathway and glyoxylate pathway							
6. Week		The Citric Acid Cycle: Catabolic and anabolic roles							
7. Week		Oxidative Phosphorylation, Photophosphorylation and integrative regulation of carbohydrate metabolism							
8. Week		Midterm Exam							
9. Week		Lipid metabolism: Fatty Acid digestion, absorption and oxidation							
10. Week		Protein metabolism: Digestion, Amino Acid Oxidation and the Production of Urea							
11. Week		Carbohydrate Biosynthesis							
12. Week		Lipid Biosynthesis							
13. Week		Biosynthesis of Amino Acids, Nucleotides and Related Molecules							
14. Week		Hormonal Regulation and Integration of Mammalian Metabolism							
15. Week		Recombinant DNA techniques and Genomics							
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)				30.00		75.00		
	Quiz(es)								
	Project								
	Homework								
	Laboratory/Atelier				10.00		25.00		
	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	2.00	28	
Applied Hours	2.00	28	Quiz and Preparation			Presentation/Seminar/Demo and Preparation			
Pre-class Self Study	2.00	28	Project and Preparation			Research/ Report/ Other and Preparation	1.00	14	
Pre-application/Post-application Self Study	2.00	28	Homework and Preparation			Final Exam and Preparation		20	
Total Student Workload Hours:		208	1 ECTS Credit = 25 Student Workload Hours			Workload Calculation:		Hesap Doğru	