

DEPARTMENT OF MOLECULAR BIOTECHNOLOGY
COURSE SYLLABUS

Course Details					
Code				Academic Year	Semester
NWI301				3	5
Title	T	A	L	ECTS	
Organic Chemistry for Biosciences	2	1	2	6	
Language	German				
Level	Undergraduate	X	Graduate		Postgraduate
Department / Program	Molecular Biotechnology				
Forms of Teaching and Learning	Face-to-face				
Course Type	Compulsory		Elective	X	
Objectives	Basic knowledge of the chemical structure, nomenclature, synthesis and reaction mechanisms of carbohydrates, lipids, peptides, and nucleic acids.				
Content	Carbohydrates [CH] (structure, synthesis and reaction mechanisms). Lipids (fatty acids and lipids, waxes, phospholipids, sphingolipids, glycolipids, biological membranes, bolaamphiphiles, isoprenoids, synthesis and reaction mechanisms). Peptides, proteins (nomenclature, primary, secondary, quaternary and tertiary structure, properties, synthesis and reaction mechanisms) Nucleic acids.				
Prerequisites	-				
Coordinator	Assoc. Prof. Dr. Aysu Yarman				
Lecturer(s)	Assoc. Prof. Dr. Aysu Yarman				
Assistant(s)	Res. Asst. Ogün Morkoç				
Work Placement	-				
Recommended or Required Reading					
Books / Lecture Notes	L. G. Wade, Jr., Organic Chemistry, Pearson, 8th Edition, 2012 S. Bräse, J. Bülle, A. Hüttermann, Organische und bioorganische Chemie, Wiley-VCH, 2008 J. Clayden, N. Greeves, Organische Chemie, Springer, 2013				
Other Sources					
Additional Course Material					
Documents					
Assignments					
Exams					
Course Composition					
Mathematics and Basic Sciences	20			%	
Engineering				%	

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Engineering Design			%
Social Sciences			%
Educational Sciences			%
Natural Sciences	60		%
Health Sciences	20		%
Expert Knowledge			%
Assessment			
Activity	Count		Percentage (%)
Midterm Exam	1		30
Quiz	-		-
Assignments	-		-
Attendance	-		-
Recitations	-		-
Projects	1		20
Final Exam	1		50
		Total	100
ECTS Points and Work Load			
Activity	Count	Duration	Work Load (Hours)
Lectures	13	2	26
Self-Study	13	5	65
Assignments	-	-	-
Presentation / Seminar Preparation	1	25	25
Midterm Exam	1	15	15
Recitations	13	1	13
Laboratory	3	5	15
Projects	-	-	-
Final Exam	1	20	20
		Total Work Load	179
		ECTS Points (Total Work Load / Hour)	6
Learning Outcomes			
1	Understanding basic principles about the chemical structure and nomenclature of carbohydrates, lipids, peptides, and nucleic acids.		
2	Knowledge of the biological significance of these natural substances.		
3	Knowledge of synthesis and biosynthesis of these natural products.		
Weekly Content			
1	Introduction		

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2	Carbohydrates Part 1
3	Stereoisomers
4	Carbohydrates Part 2
5	Carbohydrates Part 3
6	Peptides and Proteins Part 1
7	Peptides and Proteins Part 2
8	Lipids Part 1
9	Lipids Part 2
10	Nucleic Acids
11	Seminar
12	Seminar
13	Seminar

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
1	5	5	5	4	1	4	5
2							
1							

Contribution Level: 1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

<https://obs.tau.edu.tr/oibs/bologna/progLearnOutcomes.aspx?lang=en&curSunit=5707>

Compiled by:	Assoc. Prof. Dr. Aysu Yarman
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