

# CARBONION CHEMISTRY

1	Course Title:	CARBONION CHEMISTRY
2	Course Code:	KIM4011
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	4
6	Semester:	7
7	ECTS Credits Allocated:	5.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Doç.Dr. NEVİN ARIKAN ÖLMEZ
15	Course Lecturers:	Prof. Dr. Necdet Coşkun Prof. Dr. Mustafa Tavaslı
16	Contact information of the Course Coordinator:	narikan@uludag.edu.tr +90 224 29 41 731 Uludağ Üniversitesi, Fen-Edebiyat Fakültesi, Kimya Bölümü, 16059 Görükle / BURSA,
17	Website:	
18	Objective of the Course:	The aim of the course is to provide information about properties, synthesis, reactions and applications of carbonyl compounds and derivatives, amines and phenols.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	
	1	Learning the general properties and applications of organic compounds such as carbonyl compounds and derivatives, amines and phenols.
	2	Learning the methods of synthesis of these compounds.
	3	Comprehending and being construe of the basic reaction mechanisms.
	4	Earning the ability of planning and designing the synthesis reactions having steps of some organic compounds
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21	Course Content:	
	<b>Course Content:</b>	
Week	Theoretical	Practice

1	Carboxylic acids Description and general properties, synthesis and reactions of carboxylic acids. Classification of the carboxylic acid derivatives (acid chloride, ester, acid anhydride, amide, nitrile compounds). Efficiency range of carboxylic acid derivatives			
2	Acid chlorides and Anhydrides Description, nomenclature, and general properties, synthesis and reactions of acid chlorides Description, nomenclature and general properties, synthesis and reactions of acid anhydrides			
3	Esters Description, nomenclature, and general properties, synthesis and reactions of esters Hydrolysis reaction of esters in acidic and basic mediums. Synthesis of cyclic ester compounds (lactone)			
4	Amides Description, nomenclature, and general properties, base properties, synthesis and reactions of amides. Reduction of amides. Synthesis of cyclic amide compounds			
5	Nitriles Description, nomenclature, and general properties, synthesis and reactions of nitriles.			
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical	Description and general properties of conjugated diene systems. Stability of	14	3.00	42.00
Practicals/Labs		0	0.00	0.00
Self study	and 1,4-additions to conjugated diene systems. 1,4-cycloaddition reactions of	13	1.50	19.50
Homeworks		0	0.00	0.00
Projects	(no general principles)	0	0.00	0.00
7	Carbonyl Alpha-Substitution Reaction	0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm Exams	and enolate. Stability of the enolate structures. Acidity of alpha-hydrogens	1	24.00	24.00
Others		1	24.00	24.00
Final Exams	Aldehydes and ketone. Alpha-bromination of Carboxylic acids	1	48.00	48.00
Total Work Load				157.50
Total work load/ 30 hr				5.25
ECTS Credit of the Course				5.00
9	Reactions of Enolate Ions: Alkylation of enolate ion. Halogenation of enolate ion. Selenization of enolat ion			
10	Carbonyl Condensation Reactions Aldole condensation reaction-between Aldehyde and ketones. Claisen condensation reaction-between esters. Knoevenagel condensation reaction-between diethyl malonate/Malononitrile and Aldehyde/Ketone			
11	Phenol, Aniline and Aryl halogenides Electrophilic aromatic substitution reactions. Nucleophilic aromatic substitution reactions. Acid-base reactions			
12	Aliphatic Amines Nomenclature and physical properties Basicity of amines. Synthesis of Amines.			

<b>13</b>	Reactions of amines	
<b>14</b>	Polycyclic and Heterocyclic Compounds Samples and applications to polycyclic and heterocyclic compounds. Reactions and synthesis methods of polycyclic and heterocyclic compounds	
<b>22</b>	Textbooks, References and/or Other Materials:	1) G. Solomons ve C. Fryhle (Çev. Ed. G. Okay ve Y. Yıldırım), Organik Kimya, Literatür Yayınları, 2002. 2) R. J. Fessenden ve J. S. Fessenden (Çev. Ed. T. Uyar), Organik Kimya, Güneş Kitabevi, 1992. 3) J. McMurry, Organic Chemistry, Brooks/Cole Publishing Comp., 1992. 4) P. Y. Bruice, Organic Chemistry, Prentice Hall, 2001.

<b>23</b>	Assesment
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TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	1	25.00
Quiz	1	15.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	3	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

<b>24</b>	<b>ECTS / WORK LOAD TABLE</b>
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<b>25</b>	<b>CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS</b>															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
ÖK4	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0
<b>LO: Learning Objectives    PQ: Program Qualifications</b>																
<b>Contribution Level:</b>	<b>1 very low</b>			<b>2 low</b>			<b>3 Medium</b>			<b>4 High</b>			<b>5 Very High</b>			