



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
KİM734	Organic Reaction Mechanisms	Spring	E	2+0+0	2	5	English

COURSE INFORMATION

Course Catalog Description (Content)	Introduction to Organic Reaction Mechanisms, Inductive and Mesomeric Effect, Formal Charge and Oxidation Numbers, Introduction to Organic Reaction Mechanisms, Reaction Kinetics and Energy Diagrams, Basic Mechanisms, Nucleophilic Substitution Reactions (SN1, SN2, SNi), Effect of Adjacent Groups on Nucleophilic Substitution Reactions, Nucleophilic Substitution Reactions in Modern Synthesis, Elimination Reactions (E1, E2, E1cB), Elimination Reactions in Modern Synthesis, Addition Reactions, Conversion Reactions: Arrangement of Carbocations (Carbon central atom, Nitrogen, central atom, Oxygen central atom)-1, Conversion Reactions: Arrangements of Carbocations (Carbon central atom, Nitrogen central atom, Oxygen central atom)-2, Carbanion Regulations, Carbene Regulations, Azature Regulations Nitre Regulations, Radical Reactions
The Aim of the Course	To emphasize the simple explanation and intelligibility of organic reaction mechanisms, To design original syntheses on reactions whose mechanisms have been learned, To offer solutions to the problems that may occur in synthesis reactions, to produce mechanisms for these reactions when an unknown reaction is encountered.
Course Level	Degree
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	Students will learn basic organic concepts and theories and will be able to explain organic mechanisms using this knowledge. Students will learn the chemistry of the intermediate products formed during the formation of the organic product and will be able to analyze the product formation mechanisms. Students will be able to bring an approach to explain the mechanism of a new organic reaction. Students will understand advanced mechanisms and gain the ability to propose new mechanisms. Students will gain the ability and skill to plan and research their own synthesis studies and to use the learned information

COURSE CONTENT

Week	Theory	Practice/Laboratory
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1	Introduction to Organic Reaction Mechanisms, Inductive and Mesomeric Effect, Formal Charge and Oxidation Numbers	
2	Introduction to Organic Reaction Mechanisms, Reaction Kinetics and Energy Diagrams	
3	Basic Mechanisms, Nucleophilic Substitution Reactions (SN1, SN2, SNi), Effect of Adjacent Groups on Nucleophilic Substitution Reactions	
4	Nucleophilic Substitution Reactions in Modern Synthesis	
5	Elimination Reactions (E1, E2, E1cB)	
6	Elimination Reactions in Modern Synthesis	
7	Conversion Reactions: Arrangement of Carbocations (Carbon central atom, Nitrogen central atom, Oxygen central atom)-1	
8	Midterm Exam	
9	Conversion Reactions: Arrangement of Carbocations (Carbon central atom, Nitrogen central atom, Oxygen central atom)-2	
10	Carbanion Regulations	
11	Carbene Arrangements	
12	Azuretic Arrangements	
13	Nitren Regulations	
14	Radical Reactions	
15	Final Exam	

Course Learning Resources

Organic chemistry Jonathan Clayden, Nick Greeves, Stuart G Warren.
 Organic Chemistry 7th Edition, T. W. Graham Solomons (Author), Craig B. Fryhle 1999.
 Organic Reaction Mechanisms. Anac, O., Talinli N. (2008).
 Reaction Mechanisms, Metin Balci; Turkish Academy of Sciences Textbooks

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 (%)	1	%60
Total		%100

COURSE WORKLOAD TABLE

Activity	Total Weeks	Duration (Weekly Hours)	Total Workload
Midterm Examination	1	2	2
Final Examination	1	2	2
Attending Lectures	14	3	42
Field Work	1	2	2

Self Study	14	3	42
Individual Study for Mid term Examination	7	4	28
Individual Study for Final Examination	2	9	18
Total Workload			
Total Workload / 25 (s)			136/25
ECTS Credits of the Course			136/25 \cong 5
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			