



**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
KİM738	Green Chemistry		E	2+0+0	2	5	Turkish

**COURSE INFORMATION**

<b>Course Catalog Description (Content)</b>	Introduction to green chemistry, Phase transfer catalysis, Ionic liquids, Using ultrasound and microwave in organic synthesis, Chemoenzymatic reactions, Organic reactions in aqueous media, organic reactions in supercritical fluids, Solid supported reagents, Catalytic reactions
<b>The Aim of the Course</b>	Green chemistry points to the development of chemical methods and compounds to protect environment. Recently, most of the scientific researchers have aimed to contribute green chemistry and environmentally friendly, economical methods have been developed. In this course, giving some knowledge about this actual topic and the developed methods is aimed.
<b>Course Level</b>	Undergraduate
<b>Course Language</b>	Turkish
<b>Teaching method</b>	(X) Formal ( ) Online (X) Mixed/Hybrid
<b>Teaching Staff of the Course</b>	Prof. Dr. İsmail AKDENİZ
<b>Prerequisite Course(s) of the Course</b>	-
<b>Learning Outcomes from the Course</b>	<ol style="list-style-type: none"><li>1. The student can apply the new techniques to his/her processes</li><li>2. The student can plan the reactions by the way that is not harmful to environment</li><li>3. The student can explain the environmentally friendly methods.</li><li>4. The student can determine suitable methodologies and technologies for reducing the waste.</li><li>5. The student can explain the green chemistry principles.</li></ol>

**COURSE CONTENT**

Week	Theory	Practice/Laboratory
1	Introduction to green chemistry	
2	Organic reactions in aqueous media	
3	Ionic liquids	
4	Organic reactions in supercritical fluids	
5	Solid supported reagents	
6	Reactions under microwave	
7	Reactions under ultrasonic effect	
8	Reactions under ultrasonic effect	
9	Catalytic reactions, homogenous and heterogenous catalysts	
10	Phase transfer catalysis	
11	Chemoenzymatic reactions	
12	Examples from literature	
13	Examples from literature	

14	Presentations	
15	Final Exam	

### Course Learning Resources

1. T.A. Anastas, J.C. Warner, Green Chemistry: Theory and Practice, Oxford University Press, 2001.
2. V.K.Ahluwalia, Organic Synthesis: Special Techniques, CRC Press, 2000.

### ASSESSMENT CRITERIA

Work Activities During the Semester	Number	Contribution
Homework		
Practice		
Forum/ Discussion Application		
Short Exam (Quiz)	3	100
Ratio Of Semester Studies To Semester Success (%)		50
Ratio of Final to Success (%)		50
Total		%100

### COURSE WORKLOAD TABLE

Activity	Total Weeks	Duration (Weekly Hours)	Total Workload
Theory	14	2	56
Practice			
Forum/ Discussion Application			
Reading			
Internet Scanning, Library Study	14	2	28
Material Design, Application			
Report Preparation	14	2	28
Presentation Preparation			
Presentation			
Final Exam	1	2	2
Preparation for the Final Exam	1	10	10
Other(s) (Preparation for Quizzes and Exams)	3	10	30
Total Workload			126
Total Workload / 25 (s)			126/25
ECTS Credits of the Course			≅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	

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