



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
KİM739	Nuclear Chemistry	1-2	E	2+0+0		5	Turkish

COURSE INFORMATION

Course Catalog Description (Content)	Structure and properties of the nucleus, element particles, nuclear forces and stability, radioactive decay and its speed, binding energy, radioactive decay series, nuclear reactions, thermonuclear reactions, fission and fusion, radioactive radiation and interaction with matter, radioactive elements.
The Aim of the Course	To give students more detailed information about the atom and the nucleus of the atom and to provide a better understanding of this subject.
Course Level	Bachelor degree
Course Language	Turkish
Teaching method	(X) Formal () Online () Mixed/Hybrid
Teaching Staff of the Course	Asst. Prof. Dr. Hatice ARI
Prerequisite Course(s) of the Course	-
Learning Outcomes from the Course	<ol style="list-style-type: none">1- They can learn to associate Chemistry with Physics.2- Get detailed information about the electronic structure of the atom.3- They can better understand the features related to the kernel.4- Can better understand the events related to radioactivity.5- Develop environmental awareness and sensitivity about radioactivity and nuclear energy.

COURSE CONTENT

Week	Theory	Practice/Laboratory
1	The Structure of the Nucleus, Some Properties of the Atom and the Nucleus	
2	Element Particles	
3	Core Strength and Stability of the Core	
4	Radioactive Decay	
5	Artificial Radioactivity	
6	Nuclear Binding Energy and Radioactive Decay Rate	
7	Radioactive Decay Series	
8	Nuclear Reactions	
9	Nuclear Fission (Fission)	
10	Thermonuclear Reactions and Nuclear Fusion (Fusion)	
11	Interaction of Alpha, Beta and Gamma Rays with Matter	
12	Trans Uranium Elements	
13	Detection and Measurement of Radiations	
14	Uses of Radioisotopes	

15	Final Exam
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Course Learning Resources

1. A.R. Berkem ' Çekirdek Kimyası ve Radyokimya ' İstanbul Üniversitesi Basımevi, İstanbul, 1992.
2. C. Şenvar ' Atom, Molekül ve Çekirdek ' Hacettepe Üniversitesi Yayınları, Ankara, 1982.
3. J. Konya, N. M. Nagy 'Nuclear and Radiochemistry' First edition, Elsevier, 2012.
4. H.N. Erten, N.K. Tunalı, Atomun Elektron Yapısı, ODTÜ, Ankara 1997.
5. M. Cebe, Kuantum Kimyası (Atom ve Moleküler Kimyası), Dora Yayıncılık, 2011.

ASSESSMENT CRITERIA

Work Activities During the Semester	Number	Contribution
Homework	1	30
Practice		
Forum/ Discussion Application		
Short Exam (Quiz)	2	70
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
Theory	14	2	28
Practice			
Forum/ Discussion Application			
Reading	14	2	28
Internet Scanning, Library Study	14	2	28
Material Design, Application			
Report Preparation			
Presentation Preparation	2	4	8
Presentation	2	3	6
Final Exam	1	1	1
Preparation for the Final Exam	4	7	28
Diğer (Belirtiniz: Ev Ödevi)			
Total Workload			127
Total Workload / 25 (s)			127/25
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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