

**ABDULLAH GUL UNIVERSITY
INSTITUTE OF SCIENCE AND TECHNOLOGY
BIOENGINEERING DEPARTMENT
INFORMATION OF COURSE INTRODUCTION AND PRACTICE**

Course Name	CODE	SEMESTER	I+P Hour	CREDIT	AKTS
Biological Sciences for Bioengineers	BENG538	Spring-Fall	3 + 0	3	7,5

Prerequisite Courses

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Course Type	Elective
Course Language	English
Course Coordinator	Mona El Khatib
Lecturers	Dr.Adan, Dr, Kaplan, Dr. Okhubo, Dr. El Khatib
Course Assistants	-
Purpose of Course	Teaching students about the definitions and principles of different biological processes and concepts including cell biology, macromolecules, cell signaling and biochemistry
Learning Outcome	1- Gain knowledge about the basic principles in Biology 2- Introduce students to biological concepts 3- Gain the knowledge about the cell, central Dogma, Cellular interactions etc.. 4- Understand how biological processes occur
Course Content	Introduction, the cell, DNA synthesis and replication, transcription, translation, protein structure and modification, helix coil transition, Cell-cell and cell-ECM interactions, cytoskeleton, cell signaling, genetics and epigenetics, biochemistry and molecular modeling

WEEKLY SUBJECTS AND RELATED PRELIMINARY PAGES

Week	Subjects	Preliminary
1	Introduction to Biology	
2	The Cell-I	
3	The Cell-II	
4	DNA synthesis and Replication	
5	Transcription	
6	Translation, Protein Structure and Modification-I	
7	Midterm	
8	Helix-Coil Transition	
9	Cell-Cell and Cell-ECM Interactions	
10	The Cytoskeleton	
11	Cell signaling	
12	Genetics and Epigenetics	
13	Biochemistry-I	
14	Molecular Modeling:coagulation	
15	Presentation	
16	Final	

RESOURCES

Course Notes	notes and slides
Other Resources	-

MATERIAL SHARING

Documents	Lecture notes
Homework	No H.W
Exams	One Midterm and one Final

RATING SYSTEM		
SEMESTER WORKS	NUMBER	CONTRIBUTION
Midterm	1	40%
Quiz	0	0
Homework	0	0
Final	1	60%
TOTAL		100%
Success Rate of Semester		40
Success Rate of Final		60
TOTAL		100

Course Category	
Basic Sciences and Mathematics	%100
Engineering Sciences	
Social Sciences	

THE RELATIONSHIP BETWEEN THE LEARNING OUTCOMES AND PROGRAM COMPETENCE						
	No Program Competence	Contribution level				
		1	2	3	4	5
1	Understanding of Life Sciences, Mathematics and Engineering at the post-graduate level, and being able to implement of this knowledge into bioengineering problems				X	
2	Having the ability of developing a new scientific method or a technological product or process, and, designing experiments, implementing, collecting data and evaluating regarding these issues			X		
3	Choosing technical equipment used in the applications related to bioengineering, having sufficient knowledge in adopting and using new technological equipment		X			
4	Having the ability of reaching the information, using resources, contributing to the literature by transferring the process and results of scientific studies as written or verbally in the national and international environments			X		
5	Having the ability of working as an individual or a team, in the teams composed of discipline or different disciplines, gaining awareness of leadership and taking responsibility				X	
6	Having advanced level of foreign language knowledge to manage efficient verbal, written and visual communication in the major field			X		
7	Having the understanding of ethics in science and the responsibility in profession with the awareness of lifelong learning, being beneficial to society and sensitiveness to global issues			X		
8	Being aware of the social impacts of the solutions and applications of the challenges regarding Bioengineering		X			

*From 1 to 5, it increasingly goes.

ECTS / WORK-LOAD TABLE			
Activities	Activites	Duration (Hour)	Total (Work-Load)
Course Duration (Including exam week: 16x total course hour)	16	3	48
Out of Class Exercise Time (Pre-study, reinforcement)	16	7	112
Reading			
Scanning on Internet, library study	16	5	90
Material Designing, practice			
Preparation of report			
Preparation of presentation	1	18	18
Presentation	1	3	3
Homework			
Midterms	1	15	15
Final	1	15	15
Total Work-Load			301
Total Work-Load / 30			301/30
Course ECTS Credit			7,5

