

**ABDULLAH GUL UNIVERSITY
GRADUATE SCHOOL OF ENGINEERING & SCIENCE
BIOENGINEERING DEPARTMENT
COURSE DESCRIPTION AND SYLLABUS**

Course Name	CODE	SEMESTER	T+L Hour	CREDIT	ECST
Advanced Molecular Biology	BENG504	Autumn-Spring	3+0	3	10

Prerequisite Courses

Course Type	Elective
Course Language	English
Course Coordinator	Sebiha ÇEVİK-KAPLAN
Lecturers	Dr. Adan, Dr. Kaplan, Dr. Okhubo, Dr. Mona El Khatib
Course Assistants	-
Course Objectives	Describe the DNA, chromosome and gene in prokaryotes and eukaryotes at the advanced molecular level
Learning Outcomes	-DNA, structure and function -Chromosome, -Replication, transcription, translation -Posttranslational modification -Gene regulation
Course Content	DNA, RNA, protein, DNA replication, chromosome structure and function, gene structure and function

WEEKLY SUBJECTS AND RELATED PRELIMINARY PAGES

Week	Subjects	Preliminary
1	Introduction to DNA	-
2	Prokaryotic / eukaryotic cell cycle, article presentation	-
3	DNA replication	-
4	DNA repair mechanism	-
5	DNA recombination, article presentation	-
6	Chromosome structure and function	-
7	Chromatin, Chromatin remodeling , article presentation	-
8	Operons in prokaryotes and promoter in eukaryotes (control, operator) and midterm	-
9	RNA synthesis	-
10	Ribosome and protein	-
11	Transcription, article presentation	-
12	Protein translation	-
13	Posttranslational modification, article presentation	-
14	Gene regulation	-
15	Cell skeleton, article presentation	-
16	Final exams	-

RESOURCES

Course Notes	Lecturer notes and slides
Other Resources	Molecular Biology of the Cell, 4th edition, Bruce Alberts, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, and Peter Walter.

MATERIAL SHARING

Documents	Will be announced
Homework	Article presentation
Exams	Midterm and final exams

RATING SYSTEM		
SEMESTER WORKS	NUMBER	CONTRIBUTION
Midterm	1	%30
Homework	6	%30
TOTAL		%60
Success Rate of Semester		% 60
Success Rate of Final	1	%40
TOTAL		% 100

Course Category	
Basic Sciences and Mathematics	X(%100)
Engineering Sciences	
Social Sciences	

THE RELATIONSHIP BETWEEN THE LEARNING OUTCOMES AND PROGRAM COMPETENCE						
	No Program Outcomes	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	Activities	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	3	48
Reading	16	3	48
Searching on Internet, library study	8	4	32
Material Designing, practice	16	2	32
Preparation of report	0	0	0
Preparation of presentation	6	3	18
Presentation	6	3	18
Homework	16	2	32
Midterms	1	15	15
Final	1	15	15
Total Work-Load			306
Total Work-Load / 30			306/30
Course ECTS Credit			10