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

Course Name	CODE	SEMESTER	T+L Hour	CREDIT	ECST
Molecular Biology for Bioengineers	BENG501	FALL-SPRING	3+0	3	10

Prerequisite Courses	None

Course Type	Elective
Course Language	English
Course Coordinator	Assist. Prof. Dr. Aysun Cebeci Aydın
Lecturers	Assist. Prof. Dr. Aysun Cebeci Aydın Assist. Prof. Dr. Erkin Aydın
Course Assistants	None
Course Objectives	To teach basic molecular biology to engineering students
Learning Outcomes	Student will learn about applying basic molecular biology knowledge for solving medical problems.
Course Content	Building blocks of the cell, DNA replication, RNA, transciptin and translation

WEEKLY SUBJECTS AND RELATED PRELIMINARY PAGES

Week	Subjects	Preliminary
1	History of molecular biology	Main course book and related articles
2	Basic chemistry for molecular biology	Main course book and related articles
3	Cell structure, organelles	Main course book and related articles
4	DNA structure and its properties	Main course book and related articles
5	RNA and protein synthesis I	Main course book and related articles
6	RNA and protein synthesis II	Main course book and related articles
7	Genes, genomes and chromosomes I	Main course book and related articles
8	Genes, genomes and chromosomes II	Main course book and related articles
9	Midterm	Main course book and related articles
10	DNA replication	Main course book and related articles
11	Recombinant DNA	Main course book and related articles
12	Transcription	Main course book and related articles
13	Regulation of the transcription	Main course book and related articles
14	Translation	Main course book and related articles
15	Regulation of the translation	Main course book and related articles
16	Final exam	Main course book and related articles

RESOURCES

Course Notes	Lecture notes and slides
Other Resources	Course main book**:** Benjamin Lewin, 2004, Genes VIII

MATERIAL SHARING	
Documents	Lecture notes and slides
Homework	1 homework / week
Exams	1 MT and 1 Final

RATING SYSTEM		
SEMESTER WORKS	**NUMBER**	**CONTRIBUTION**
Midterm	1	30
Homework	14	20
Attendance	14	10
TOTAL		60
Success Rate of Semester		60
Success Rate of Final	1	40
TOTAL		100

Course Category	
Basic Sciences and Mathematics	%00
Engineering Sciences	%0
Social Sciences	%00

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	8	128
Searching on Internet, library study	16	4	56
Quizzes			
Homework	1	35	35
Midterms	1	5	5
Final	1	10	10
Total Work-Load			290
Total Work-Load / 30			290/30
Course ECTS Credit			10