

**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 Engineers	AMN568	FALL-SPRING	3+0	3	10

Prerequisite Courses	None
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Type	Elective
Language	English
Coordinator	Assist. Prof. Dr. Aysun Cebeci Aydın
Instructor	Assist. Prof. Dr. Aysun Cebeci Aydın Assist. Prof. Dr. Erkin Aydın
Adjunct	None
Aim	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, transcriptin and translation

WEEKLY TOPICS AND RELATED PRELIMINARY STUDY		
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

SOURCES

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

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

EVALUATION SYSTEM		
SEMESTER STUDY	NUMBER	CONTRIBUTION
Midterm	1	30
Homework	14	20
Attendance	14	10
SUB-TOTAL		60
Contribution of Semester Study		60
Contribution of Final Exam	1	40
TOTAL		100

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

RELATIONSHIPS BETWEEN LEARNING OUTCOMES AND PROGRAM QUALIFICATIONS						
No	Program Qualifications	Contribution Level				
		1	2	3	4	5
1	Accessing knowledge, evaluating and interpreting information by doing scientific research in the field of Materials Science and Mechanical Engineering				x	
2	Ability to use science and engineering knowledge for development of new methods in Materials Science and Mechanical Engineering			x		
3	To be able to understand and analyze materials by using basic knowledge on Materials Science and Mechanical Engineering				x	
4	Design and implement analytical, modeling and experimental research			x		
5	Solve and interpret the problems encountered in experimental research					
6	Considering scientific and ethical values during the collection and interpretation of data				x	
7	Integrating knowledge of different disciplines with the help of scientific methods, and completion and implementation of scientific knowledge using data		x			
8	To gain leadership ability and responsibility in disciplinary and interdisciplinary team works		x			
9	To be able to contribute to the solution of social, scientific and ethical problems encountered in the field of Materials Science and Mechanical Engineering		x			
10	To be able to define, interpret and create new information about the interactions between various discipline of Materials Science and Mechanical Engineering				x	

*Increasing from 1 to 5.

ECTS / WORK LOAD TABLE			
Activities	Number	Duration (Hours)	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