

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

Course Title	CODE	SEMESTER	T+L Hour	CREDIT	ECST
Recent Topics in Biotechnology	AMN575	FALL-SPRING	3+0	3	10

Prerequisite Courses	None
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Type	Elective
Language	English
Coordinator	Assist. Prof. Dr. Aysun Cebeci Aydın
Lecturers	Assist. Prof. Dr. Aysun Cebeci Aydın Assist. Prof. Dr. Erkin Aydın
Adjunct	None
Aim	Recent developments in biotechnology
Learning Outcomes	Student will learn about <ul style="list-style-type: none"> • Broad understanding of the biotechnological fields • Interaction of biotechnology with other technologies and its industrial applications • New biotechnological applications and products
Course Content	History of biotechnology, molecular biology techniques, plant biotechnology, animal biotechnology, antimicrobials and drug discovery, industrial biotechnology, stem cell research, nanobiotechnology, ethics

WEEKLY TOPICS AND PRELIMINARY STUDY		
Week	Topic	Preliminary Study
1	Introduction	Main course book and related articles
2	History of biotechnology	Main course book and related articles
3	Molecular biology techniques I	Main course book and related articles
4	Molecular biology techniques II	Main course book and related articles
5	Plant biotechnology	Main course book and related articles
6	Animal biotechnology	Main course book and related articles
7	Use of DNA technology in forensics	Main course book and related articles
8	Discovery of new antimicrobials	Main course book and related articles
9	Industrial biotechnology	Main course book and related articles
10	Midterm	Main course book and related articles
11	Stem cell research	Main course book and related articles
12	Nanobiotechnology	Main course book and related articles
13	Biotechnology and ethics	Main course book and related articles
14	Student presentations	Main course book and related articles
15	Student presentations	Main course book and related articles
16	Final exam	Main course book and related articles

SOURCES	
Lecture Notes	Lecture notes and slides
Other Sources	Course main book: "Biotechnology", David P. Clark ve Nanette J. Pazdernik, 2nd Edition, 2015, Cell Press

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

EVALUATION SYSTEM		
SEMESTER WORKS	NUMBER	CONTRIBUTION
Midterm	1	20
Homework	1	25
Presentation	1	25
SUB-TOTAL		70
Contribution of Semester Study		70
Contribution of Final Exam	1	30
TOTAL		100

Course Category	
Basic Sciences and Mathematics	%50
Engineering Sciences	%40
Social Sciences	%10

RELATIONSHIPS BETWEEN LEARNING OUTCOMES AND PROGRAM QUALIFICATIONS						
	No Program Qualifications	Contribution Level				
		1	2	3	4	5
1	Assessing 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	Activities	Duration (Hour)	Total (Work-Load)
Course Length (Includes exam weeks: 16x total course hours)	16	3	48

Out-of-Class Exercise Time (Pre-study, practice)	16	7	112
Searching on Internet, library study	16	3	48
Presentation	5	3	15
Homework	16	3	48
15Midterms	1	15	15
Final	1	15	15
Total Work Load			301
Total Work-Load / 30			301/30
Course ECTS Credit			10