

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

Course Name	CODE	SEMESTER	T+L Hour	CREDIT	ECST
Recent topics in biotechnology	BENG502	FALL-SPRING	3+0	3	10

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

<b>WEEKLY SUBJECTS AND RELATED PRELIMINARY PAGES</b>		
Week	Subjects	Preliminary
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
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### RESOURCES

<b>Course Notes</b>	Lecture notes and slides
<b>Other Resources</b>	Course main book: "Biotechnology", David P. Clark ve Nanette J. Pazdernik, 2nd Edition, 2015, Cell Press

### MATERIAL SHARING

<b>Documents</b>	Lecture notes and slides
<b>Homework</b>	1 homework / week
<b>Exams</b>	1 MT and 1 Final

### RATING SYSTEM

SEMESTER WORKS	NUMBER	CONTRIBUTION
Midterm	1	20
Homework	1	25
Presentation	1	25
<b>TOTAL</b>		70
<b>Success Rate of Semester</b>		70
<b>Success Rate of Final</b>	1	30
<b>TOTAL</b>		100

### Course Category

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

### 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					<b>X</b>
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					<b>X</b>
3	Choosing technical equipment used in the applications related to bioengineering, having sufficient knowledge in adopting and using new technological equipment					<b>X</b>
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					<b>X</b>
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				<b>X</b>	
6	Having advanced level of foreign language knowledge to manage efficient verbal, written and visual communication in the major field				<b>X</b>	
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					<b>X</b>
8	Being aware of the social impacts of the solutions and applications of the challenges regarding Bioengineering					<b>X</b>

\*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	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
<b>Total Work-Load</b>			301
<b>Total Work-Load / 30</b>			301/30
<b>Course ECTS Credit</b>			10