

**ABDULLAH GUL UNIVERSITY
INSTITUTE OF SCIENCE AND TECHNOLOGY
BIOENGINEERING DEPARTMENT
INFORMATION OF COURSE INTRODUCTION AND PRACTICE**

Course Name	CODE	SEMESTER	I+P Hour	CREDIT	ECST
Bioinformatics	BENG506	Spring-Fall	3 + 0	3	10

Prerequisite Courses	None
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Course Type	Selective
Course Language	English
Course Coordinator	Y. Zenmei Ohkubo
Lecturers	Y. Zenmei Ohkubo
Course Assistants	Berrak Albostan, Yağmur Kiraz
Course Objectives	Making students familiar with bioinformatics theories and methodologies
Learning Outcomes	<ol style="list-style-type: none"> 1 Students feel comfortable with bioinformatics theories and methodologies 2 Students will be able to employ appropriate bioinformatics approach in their research when necessary
Course Content	Macromolecules, computer science, and bioinformatics methodologies

WEEKLY SUBJECTS AND RELATED PRELIMINARY PAGES

Week	Subjects	Preliminary
1	Cell and organelles	-
2	DNA, RNA, and proteins	-
3	Data structure and algorithms	-
4	Machine learning and data mining	-
5	Sequence alignment	-
6	Motif search	-
7	Structure prediction	-
8	MD simulation	-
9	Midterm	
10	Genetic linkage	-
11	Molecular evolution	-
12	DNA microarray	-
13	Molecular interaction network	-
14	Student presentation	-
15	Student presentation	-
16	Final	-

RESOURCES

Course Notes	Notes and slides
Other Resources	TBA

MATERIAL SHARING

Documents	Lecture notes
Homework	1 homework after each class
Exams	1 midterm and 1 final exam

RATING SYSTEM

SEMESTER WORKS	NUMBER	CONTRIBUTION
Midterm	1	22
Homework	12	48
TOTAL		70
Success Rate of Semester		70

Success Rate of Final	1	30
TOTAL		100

Course Category		
Basic Sciences and Mathematics		%50
Engineering Sciences		%50
Social Sciences		%0

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	7	112
Reading	14	2	28
Searching on Internet, library study	16	3	48
Material Designing, practice			
Preparation of report			
Preparation of presentation	2	10	20
Presentation	2	3	6
Homework	10	3	30
Midterms	1	3	3
Final	1	3	3
Total Work-Load			298
Total Work-Load / 30			298/30
Course ECTS Credit			10