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

Course Name	CODE	SEMESTER	T+L Hour	CREDIT	ECST
Advanced Cell Biology	BENG508	Fall-spring	3 + 0	3	10

Prerequisite Courses	

Course Type	Elective
Course Language	English
Course Coordinator	Asst. Prof. Dr. Sebiha ÇEVİK-KAPLAN
Lecturers	Dr. Kaplan, Dr. Ohkubo
Course Assistants	Res. Asst. Yağmur Kiraz
Course Objectives	Teaching Cell Biology in details.
Learning Outcomes	Cell, cell cycle, signaling, molecular motors, exo and endocytosis, coagulation
Course Content	Course will cover topics related to the cell; Cell, cell cycle, signaling, ECM, protein dynamics

WEEKLY SUBJECTS AND RELATED PRELIMINARY PAGES

Week	Subjects	Preliminary
1	Introduction to cell cycle and cell growth	-
2	Cell signaling, its function and control	-
3	Cell signaling, its function and control and article presentation	-
4	apoptosis	-
5	Loss of mitochondrial function and cell death	-
6	Autophagy, article discussion related to the subject, article presentation about topic	-
7	Cell structure and function and structural defects (midterm)	-
8	Exocytosis, Endocytosis and secretion	-
9	Molecular motors in cell biology, article presentation about topic	-
10	Overview of cell microenvironment	-
11	Extracellular matrix: its role, structure and function	-
12	Cell-extracellular matrix interactions	-
13	Cell migration and control mechanism, article presentation about topic	-
14	Coagulation cascade and factors	-
15	Identification of molecular dynamics for coagulation factors	-
16	Final exam	-

RESOURCES

Course Notes	Lecture notes and slides
Other Resources	Cell Biology: A Short Course. Stephen R. Bolsover, Elizabeth A. Shephard, Hugh A. White, Jeremy S. Hyams

MATERIAL SHARING

Documents	Lecture notes and slides
Homework	Articles
Exams	Midterms and final exams

RATING SYSTEM

SEMESTER WORKS	NUMBER	CONTRIBUTION
Midterm	1	%30
Homework	4	%30
TOTAL		%70
Success Rate of Semester		%70
Success Rate of Final		%40
TOTAL		%100

Course Category	
Basic Sciences and Mathematics	%100
Engineering Sciences	
Social Sciences	

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	3	48
Reading	16	2	32
Searching on Internet, library study	5	3	15
Material Designing, practice	4	16	64
Preparation of report	1	15	15
Preparation of presentation	1	15	15
Presentation	5	4	20
Homework	3	4	12
Midterms	1	15	15
Final	1	15	15

Total Work-Load			299
Total Work-Load / 30			299/30
Course ECTS Credit			9.9