Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Genetic and Bioengineering Department
2023-2024 Spring Semester

Syllabus	
Code/Name	GBM 104 / INT. TO GENETICS AND BIOENGINEERING
Type	Required
Credit/ECTS	3/3
Hour per Week	2 (2+0+0)
Level/Year	Undergraduate/1
Semester	Spring
Classroom	D107
Content	Definition, history and fields of study of genetic and bioengineering engineering. Review of DNA, DNA replication, transcription, translation and regulation of gene expression. Application areas of recombinant DNA technology. Human Genome Project
Prerequisites	
Textbooks	***Primary*** Class Notes ***Supplementary***
Objectives	• To learn the definition, history and working areas of genetics and bioengineering in detail. • Learning the definition, function, structure and synthesis of nucleic acids. • Detailed learning of DNA replication, transcription, translation mechanisms. Learning the regulation of gene expression in eukaryotic and prokaryotic organisms. • To learn the application areas of recombinant DNA technology. • To learn the Human Genome Project in detail.
Course Outcomes	In this course you will be able to: CO1 Understand the concepts of genetics and bioengineering. CO2 Outline the applications of recombinant DNA technology. CO3 Understand the structure, function and synthesis of nucleic acids in detail. CO4 Develop problem solving skills. CO5 To have knowledge about the Human Genome Project and to follow current developments closely.

Weekly Schedule of Topics

W	Topic
1	Definition and history of genetics and bioengineering
2	Working areas of genetics and bioengineering, job opportunities in our country and in the world
3	Definition and application areas of recombinant DNA technology
4	Definition, function, structure of nucleic acids (DNA, RNA)
5	DNA synthesis (replication) mechanism
6	RNA Synthesis (Transcription) mechanism
7	Protein synthesis (translation) mechanism
8	Post-translational modifications
9	Gene regulation in prokaryotic organisms
10	Gene regulation in eukaryatic organisms

11	The purpose and importance of the human genome project
12	Objectives of the human genome project
13	The impact of the human genome project on health and society
14	Nobel Prize-winning scientific studies in genetics and bioengineering

Professional Contribution	Understanding the field of Genetics and Bioengineering and its applications

Contribution to Program Outcomes*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	4	3	1	5	4	3	1	3	2	3	5
CO2	4	4	1	5	5	3	1	3	4	3	5
CO3	4	4	1	4	5	3	1	3	2	3	5
CO4	0	0	3	1	3	3	2	3	4	4	5
CO5	0	0	1	1	1	3	4	3	5	1	4

* Contribution Level | 0: None | 1: Very Low | 2: Low | 3: Medium | 4: High | 5: Very High

Special Conditions	
Requirements	
Course Policy	• Be in class on time. • English should be used to communicate with each other. If there is difficulty in making sentences in English, a dictionary can be used. • Cell phones must be turned off and put away during class. • Attendance is not compulsory.
Cheating & Plagiarism	• Copying or letting someone copy your work on exams, assignments, or reports is cheating. • Cutting and pasting text, figures and tables from web sources or any other electronic source is plagiarism. • The consequence of academic dishonesty is to receive a grade of **FF** for the course.
Evaluation	Midterm 50% Final Exam 50% Total 100%
Rubric	A rubric will be announced by the instructor before the exams are given.

Instructor

Name/Surname	Dr. Sevda ALTUN	Email	sevda.altun@alanya.edu.tr
Room		Office Hours	W 11.30-12.30 | T 13.30-14.30

Prepared by Dr.Sevda ALTUN.