Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Genetics and Bioengineering Department
2024-2025 Fall Semester

Syllabus	
Code/Name	GBM 203L / CELL BIOLOGY LAB
Type	Required
Credit/ECTS	2/2
Hour per Week	2
Level/Year	Undergraduate/2
Semester	Fall
Classroom	FFF | L114
Content	This is a course that covers the systems for applying theoretical knowledge from other Genetics and Bioengineering courses into practice. In this context, the materials and processes necessary for laboratory applications will be presented, and students will be able to both design and implement them. The preparation, calculation, and steps involved in making basic chemical solutions, bacterial culture techniques, cell counting using a hemocytometer, simple staining, the examination of buccal epithelial cells, tissue preparations, and plant specimens will be taught in detail along with their practical applications.
Prerequisites	GBM 101 BIOLOGY I, GBM 101L BIOLOGY I LAB, GBM 106 BIOLOGY II, GBM 106LBIOLOGY II LAB
Textbooks	***Primary*** Laboratory textbook prepared by the faculty members of our department ***Supplementary*** Research article published in such library as PUBMED, ELSEVIER
Objectives	● To describe both the theoretical background and cell biology laboratory application principles of the techniques necessary for the processing, modification, and artificial transfer of genetic information from cell to cell. ● To evaluate and interpret experimental data. ● To develop weekly laboratory reports using Genetic and Bioengineering approaches.
Course Outcomes	In this course students should be able to: CO1. Apply laboratory safety rules in cell biology laboratory applications. CO2. Perform various experiments as outlined in the weekly schedule topics. CO3. Analyze experimental data, interpret and document experimental results. CO4. Critically assess the accuracy of experimental results by comparing them to relevant literature. CO5. Analyze and resolve problems that may arise in the laboratory by utilizing effective troubleshooting strategies.

Weekly Schedule of Topics

W Topic	Laboratory | Experiments | Discussions
1	Introduction, organizing study groups, General Information
2	Pipetting with Micropipettes
3	Preparation of Bacterial Medium
4	Preparation of plant extracts and antimicrobial activity testing
5	Examination of bacterial samples under the microscope
6	Simple Staining (gram staining)
7	Examination of Yeast's microscopic morphology
8	Examination of Buccal Epithelial Cell and Mammalian Cell Culture Samples Under the Microscope

9	Cell Counting with Hemocytometer
10	Examination of tissue preparations
11	Isolation and Microscopic Examination of Cells from Various Tissue Samples (Mammalian Tissue)
12	Isolation and Microscopic Examination of Cells from Various Tissue Samples (Plant Tissue)
13	Estimation of chlorophyll present in the leaf tissue
14	General review

Professional Contribution	Be able to conduct experiments with analyzing data and comparing the results obtained from experiment with literature, and to write weekly report with group member

Contribution to Program Outcomes*

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

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

Special Conditions	● Students work in groups. ● Experimental studies are reported using MS Word or PDF format.
Requirements	
Course Policy	● Students must arrive in the class or laboratory on time. ● Both students and the lecturer must communicate in English. ● Students should prepare by reading lab notes and assigned articles prior to the lab session each week. ● At least 80% attendance is required; otherwise, a grade of DZ will be assigned.
Cheating & Plagiarism	● Copying or letting someone copy anyone work on exams, assignments, or reports is cheating. ● Cutting and pasting text, figures and tables from web sources, chatGPT or any other electronic source is plagiarism. ● The consequence of academic dishonesty is to receive a grade of **FF** for the course.
Evaluation	The evaluation breakdown is as follows: **Laboratory Reports (14 pieces) – 30%** Throughout the course, students are required to submit a laboratory report each week, totaling 14 reports over the duration of the semester. **Midterm Exam – 20%** **Final Exam – 50%**
Rubric	For each report, a rubric will be provided during the first week. The rubric has four main sections for grading: aim of the study, materials & methods, results, and discussion.

Instructor

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Room	310	Office Hours	Monday 10:30-12:30 and Tuesday 10:30-12:30

Prepared by Özlem KAPLAN