Syllabus

Code/Name	GBM 212 / BIOCHEMISTRY I
Type	Required
Credit/ECTS	4/4
Hour per Week	3 (3+0+0)
Level/Year	Undergraduate/2
Semester	Fall
Classroom	D306
Content	The aim of this course is to teach basic principles related to metabolism and bioenergetics, the structure and function of carbohydrates, Lipids, amino acids and proteins, enzyme structure and function, membranes and nucleic acids.
Prerequisites	-
Textbooks	***Primary*** Lehninger Principles of Biochemistry Eighth Edition (2021) by David L. Nelson & Michael M. Cox, Biochemistry 9th Edition (2019) by Lubert Stryer ***Secondary*** Recent articles Scientific videos
Objectives	• To ensure that students gain knowledge of the structures and functions of macromolecules like DNA, RNA and proteins, lipids and carbohydrates • To ensure that students apply their knowledg to prepare buffers and other solutions • To ensure that students develop skills to understand and evaluate research in biochemistry • To enable students acquire skills in identifying macromolecular structures
Course Outcomes	In this course you will be able to: CO1 The student fully memorize the basic principles of biochemistry and its biochemical importance, the functions and structures of molecules in metabolism. CO2 The student recognize the interaction of biological molecules with each other. CO3 It provides the ability to apply knowledge in biochemistry field to bioengineering problems. CO4 Select and use databases and current topics in biochemistry CO5 Memorize foundational knowledge in biochemistry.

Weekly Schedule of Topics

W	Topic
1	Foundations of biochemistry
2	Water and Aqueous Solutions
3	Amino Acids, Pepides, Protein Structure
4	Proteins: Methods, Properties, Folding, Function
5	Function of Proteins
6	Enzymes
7	Mathematical Look at Enzymatic Reactions
8	Carbohydrates

9	Glycobiology
10	Nucleoids and Nucleic Acids
11	Chemistry of nucleic acids; mutagenesis
12	Lipids
13	Biological membranes
14	Post-translational modifications

Professional Contribution

Contribution to Program Outcomes*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1		5	4		5						3
CO2		4				4					3
CO3			5			5					3
C04		5	4	5	3						5
C05		5	5	3		5					5

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

Special Conditions	Students work in groups for the presentations.
Requirements	Basic knowledge of biology and Basic Computer Knowledge
Course Policy	• Be in the class on time. • English should always be used to communicate with one another. • At least 80% attendance is required, otherwise, a grade of **DZ** will be assigned. • You must be present in class for the presentations, otherwise you will not be graded.
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 40% Final Exam 60% Total 100%

Instructor

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Room	314	Office Hours	Tuesday 14:30-15:15 and Wednesday 10:30-11:15/15:30-16:15

Prepared by Özgür Öztürk on November 18th, 2024