

SYLLABUS

Course Information

Code/Name	GBM 307 / BIOCHEMISTRY II
Type	Required
Credit/ECTS	4/4
Hour per Week	3 (3+0+0)
Level/Year	Undergraduate/3
Semester	Fall
Classroom	D306

Content

Biochemistry-II course includes topics related to metabolism. It covers the pathways related to ATP production, signal transduction systems, synthesis and degradation mechanisms of biological molecules, and the interaction of these pathways with each other.

Prerequisites

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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 provide students with knowledge about metabolism
- recognize the differences between normal metabolism and abnormal metabolism
- To enable students to acquire methods of compare biochemical structures and pathways
- Learning to access up-to-date information about the field and use databases
- Provide the ability to evaluate and understand biochemical research

Course Outcomes

In this course you will be able to:

CO1 Distinguish how living things are formed from inanimate materials, what are the chemical factors that ensure the continuation of life, what the structure and function of the molecules in living things are, and to distinguish their synthesis and destruction mechanisms.

CO2 Recognize that structural disorders of biological molecules can cause functional disorders and pathologies

CO3 Recognize how metabolic pathways operate

CO4 Select and use databases and current topics in biochemistry

CO5 Assess the function and regulation of carbohydrate, lipid and protein metabolism.

Weekly Schedule of Topics

Week	Topic
1	Bioenergetics
2	Metabolism
3	Glycolysis
4	Principles of Metabolic Regulation: Glucose And Glycogen
5	Citric Acid Cycle
6	Fatty Acid Catabolism
7	Amino Acid oxidation
8	Oxidative phosphorylation and photophosphorylation
9	Carbohydrate biosynthesis
10	Lipid biosynthesis
11	Amino acid biosynthesis
12	Hormonal regulation
13	Information pathways I
14	Information pathways II

Contribution to Program Outcomes*

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

* 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 Exam	40%
Final Exam	60%

Instructor

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Prepared by Büşra Perihan Yücel on 5th October 2026.