

Course Syllabus

1	Course title	Biochemistry
2	Course number	0354711
3	Credit hours	3
	Contact hours (theory, practical)	3
4	Prerequisites/corequisites	B.Sc.
5	Program title	Master of Biological Sciences
6	Program code	4
7	Awarding institution	University of Jordan
8	School	Faculty of Sciences
9	Department	Biological Sciences
10	Course level	Master in Biological Sciences
11	Year of study and semester (s)	Second semesters 2023-2024
12	Other department (s) involved in teaching the course	None
13	Main teaching language	English / Arabic
14	Delivery method	☒ Face to face learning ☐ Blended ☐ Fully online
15	Online platforms(s)	☒ Moodle ☒ Microsoft Teams ☐ Skype ☐ Zoom ☐ Others.....
16	Issuing/Revision Date	Feb 2024

17 Course Coordinator:

Name: Dr. Tareq Alhindi

Contact hours: TBA

Office number: 305

Phone number: 22236

Email: t.alhindi@ju.edu.jo



18 Other instructors:

Name:

Office number:

Phone number:

Email:

Contact hours:

Name:

Office number:

Phone number:

Email:

Contact hours:

19 Course Description:

As stated in the approved study plan.

Aqueous solutions, acids, bases, buffers, titration's and functional groups, the covalent structure of proteins including their primary and three-dimensional structure, protein folding, dynamics and evolution, techniques of macromolecular isolation and purification, hemoglobin I as an example of protein function in microcosm.

20 Course aims and outcomes:

A- Aims:

- Understanding of macromolecules chemical evolution
- Understanding of key biochemical interactions
- Understanding of acids, bases, water and buffers.
- Understanding of protein purification methods, protein structure and properties.
- Understanding of enzymes and enzymatic reactions mechanisms.
- Understanding of protein-protein interaction and protein-ligand interaction.
- Understanding of key biochemical interactions in biodegradation.

B- Students Learning Outcomes (SLOs):

Upon successful completion of this course, students will be able to understand the following:

1. List the various theories on the origin of life and macromolecules chemical evolution.
2. Characterize aqueous solutions especially buffers in biological systems.
3. Understand the basic principles of protein structure-function relationship.
4. Discriminate between the different protein purification methods.
5. List some available tools for protein structure prediction.
6. Understand the molecular mechanism of key enzymatic reactions.
7. Understand the concept of protein-ligand interaction.
8. Contrast the various types of enzyme inhibition mechanisms.

SLOs SLOs of the course	SLO (1)	SLO (2)	SLO (3)	SLO (4)
1	x			
2	x			
3	x			
4	x			
5	x			
6	x			

21. Topic Outline and Schedule:

Week	Lecture	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	1.1	Introduction	1	Face to Face	MS Teams	synchronous	Q & A	Book + Slides
	1.2	Origin of life	1	Face to Face	MS Teams	synchronous	Q & A	Book + Slides
2	2.1	Chemical Evolution	1	Face to Face	MS Teams	Synchronous	Homework	Book + Slides
	2.2	Essential Biochemical Reactions	1,2	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
3	3.1	Solvents and Buffers	2	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
	3.2	Protein Structure and Function	3	Face to Face	MS Teams	Synchronous	Reports	Book + Slides
4	4.1	Protein-Folding Dynamics	3	Face to Face	MS Teams	Synchronous	Assignment	Book + Slides
	4.2	Peptide Solid-Phase Synthesis	3	Face to Face	MS Teams	Synchronous	Homework	Book + Slides
5	5.1	Protein Assays	4,5	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
	5.2	Protein-Ligand Interaction	4,5,7	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
6	6.1	Enzyme Kinetics	6,7	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
	6.2	Enzyme inhibition	8	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
7	7.1	Cutting Edge Technologies	5	Face to Face	MS Teams	Synchronous	Quiz	Book + Slides
	7.2	Midterm Exam	1-5	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides

8	8.1	Oral presentation	1-8	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
	8.2	Oral presentation	1-8	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
9	9.1	Oral presentation	1-8	Face to Face	MS Teams	Synchronous	Report	Book + Slides
	9.2	Oral presentation	1-8	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
10	10.1	Oral presentation	1-8	Face to Face	MS Teams	Synchronous	Reports	Book + Slides
	10.2	Oral presentation	1-8	Face to Face	MS Teams	Synchronous	Homework	Book + Slides
11	11.1	Scientific method	1-8	Face to Face	MS Teams	Synchronous	Homework	Book + Slides
	11.2	Scientific writing	1-8	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
12	12.1	Guest Presentation	1-8	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
	12.2	Journal Club	1-8	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
13	13.1	Journal Club	1-8	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
	13.2	Journal Club	1-8	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
14	14.1	Journal Club	1-8	Face to Face	MS Teams	Synchronous	Homework	Book + Slides
	14.2	Guest Presentation	1-8	Face to Face	MS Teams	Synchronous	Q & A	Book + Slides
15	15.1	Term paper	1-8	Face to Face	MS Teams	Synchronous	Reports	Book + Slides
	15.2	Term paper	1-8	Face to Face	MS Teams	Synchronous	Reports	Book + Slides

22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Term paper	15	TPA	1	10-15	written
Oral presentation	15	TPA		8-15	oral
Midterm Exam	30	1-5	1	7	written
Final Exam	40	1-8	1	16	written

23 Course Requirements

(e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):

A PC or new smartphone with MS Teams installed and an adequate internet connection; a suitable internet browser to open the Moodle webpage E-learning and JU Exams, and to access Facebook to follow course group

24 Course Policies:

A- Attendance policies:

Enrolled students are expected to attend the lectures in line with the university of Jordan policy as outlined in the JU student handbook. Failure to do so will make the student subject to the penalties outlined in the said document. Furthermore, missing classes will have negative repercussions on the student's participation grade.

B- Absences from exams and submitting assignments on time:

You should talk to your instructor as soon as possible if you miss an exam. All such cases will be dealt with according to the UJ student handbook rules.

C- Health and safety procedures: NA

D- Honesty policy regarding cheating, plagiarism, misbehavior:

All violations pertaining to cheating, plagiarism and misbehaviour will be dealt with in accordance to the rules outlined in the UJ student handbook. In order to avoid plagiarism, the sources for the information contained in your homework must be properly cited and verbatim quotations must be limited and explicitly presented as such. To learn more about the procedures for ethical referencing of



information and how to assess the credibility of information critically you can consult with the relevant documents in the course UJ e-learning page (see below).

E- Grading policy: As in Evaluation methods.

F- Available university services that support achievement in the course:

Moodle course page at University of Jordan e-learning portal: <https://elearning.ju.edu.jo/>

25 References:

A- Required book(s), assigned reading and audio-visuals:

“Lehninger Principles of Biochemistry, 8th Edition” by David L. Nelson. © 2021.
ISBN-13 : 978-1319228002

B- Recommended books, materials, and media:

“The Vital Question” by Nick Lane. © 2016. ISBN-13 : 978-0393352979

Articles, Videos and other material will be provided to students through the online portal (E-Learning) and the course group on Facebook.

26 Additional information:

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Name of Course Coordinator: -Dr. Tareq Alhindi -----Signature: ----- Date: -----
Head of Curriculum Committee/Department: ----- Signature: ----- ---
Head of Department: ----- Signature: ----- -
Head of Curriculum Committee/Faculty: ----- Signature: ----- -
Dean: ----- Signature: -----