



## Course Syllabus

1	<b>Course title</b>	Metabolism
2	<b>Course number</b>	0308445
3	<b>Credit hours</b>	3 hrs
	<b>Contact hours (theory, practical)</b>	3 hrs (3 hrs theory/week)
4	<b>Prerequisites/corequisites</b>	General biochemistry
5	<b>Program title</b>	Bachelor of Clinical Laboratory Sciences
6	<b>Program code</b>	0308
7	<b>Awarding institution</b>	The University of Jordan
8	<b>School</b>	Science
9	<b>Department</b>	Clinical Laboratory Sciences
10	<b>Course level</b>	Third Year
11	<b>Year of study and semester (s)</b>	First Semester 2023/2024
12	<b>Other department (s) involved in teaching the course</b>	
13	<b>Main teaching language</b>	English
14	<b>Delivery method</b>	<input checked="" type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online
15	<b>Online platforms(s)</b>	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
16	<b>Issuing/Revision Date</b>	11/4/2024

### 17 Course Coordinator:

<b>Name:</b> Abeer AlQatati	<b>Contact hours:</b>
<b>Office number:</b> 1 <sup>st</sup> Floor-Biology building	<b>Phone number</b> 0797994080
<b>Email:</b> a.alqatati@ju.edu.jo	

### 18 Other instructors:

Name:
Office number:
Phone number:
Email:
Contact hours:



### 19 Course Description:

This course is intended to introduce the students to many of the basic concepts in metabolic pathways. It is geared for students who plan to take up some aspects of science professionally by gaining a thorough and usable understanding of Metabolism. One of the best ways to reach that goal is by continuous reading. The student should try to have a look and read the material each day. Continuous reading is the best measure for the student's personal progress. Active studying by whatever method is one of the best keys to real learning.



## 20 Course aims and outcomes:

### A- Aims:

This course concentrates on the metabolic pathways related to the major organic molecules in the cell which includes amino acids, proteins, enzymes, carbohydrates, lipids and nucleic acids.

### B- Students Learning Outcomes (SLOs):

For purposes of mapping the course SLOs to the MLS program SLOs, upon the successful completion of the program, graduates are expected to be able to:

**SLO(1).** Understand and apply the theoretical foundations of medical laboratory sciences to accurately calibrate and operate advanced laboratory equipment.

**SLO(2).** Demonstrate knowledge of safety protocols, Ministry of Health regulations, and environmental preservation practices when handling samples of pathogens and chemical/biological risks.

**SOL(3).** Acquire in-depth technical knowledge to stay abreast of scientific advancements and actively participate in local and global applied research in the field.

**SOL(4).** Perform diverse analyses and effectively interpret results for various clinical samples across laboratory disciplines such as hematology, clinical chemistry, microbiology, urine analysis, body fluids, molecular diagnostics, and immunology.

**SOL(5).** Apply practical training to solve complex problems, troubleshoot issues, and interpret results, ensuring a connection between data and specific medical conditions for precise diagnosis.

**SOL(6).** Show effective communication skills to convey information accurately and appropriately in a laboratory setting.

**SOL(7).** Demonstrate a commitment to lifelong learning and innovation by applying modern techniques, critically analyzing information, and contributing to the creation and application of new knowledge in medical laboratory sciences which fulfil the requirements of national and international CBD.

**SOL(8).** Uphold professional behavior, ensuring the confidentiality of client information, and respecting client privacy throughout all aspects of laboratory work.

**SOL(9).** Apply managerial skills that align with quality assurance, accreditation, quality improvement, laboratory education, and resource management, showcasing competence in the effective administration of laboratory practices.

Descriptors	ILO/ID	Program SLOs	SLO (1)	SLO (3)	SLO (5)	SLO (7)
		Course SLOs				
Knowledge	A1	Understanding the chemical processes and transformations that occur within living organisms is fundamental to comprehending metabolic pathways.		X		
	A2	Understanding the function and regulation of enzymes, which are critical for catalyzing metabolic reactions.		X		
Skills	B1	Analyzing and evaluating metabolic pathways, including identifying key molecules, enzymes, and regulatory mechanisms.				X
	B2	Applying knowledge of metabolic pathways to solve complex problems, such as understanding metabolic disorders or designing experiments.			X	
Competence	C1	Being able to adapt to new discoveries and technologies in the field of metabolism, which is continuously evolving.				X
	C2	Applying knowledge of metabolism to real-world problems, such as developing therapeutics for metabolic disorders or optimizing metabolic pathways for biotechnological applications.				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	Overview of metabolism and basic metabolic pathways.	A1, A2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	1.2	Overview of metabolism and basic metabolic pathways.	A1, A2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	1.3	Overview of metabolism and basic metabolic pathways.	A1, A2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
2	2.1	Bioenergetics	A1, A2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	2.2	Bioenergetics	A1, A2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	2.3	Bioenergetics	A1, A2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
3	3.1	Carbohydrate metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1

	3.2	Carbohydrate metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	3.3	Carbohydrate metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
4	4.1	Carbohydrate metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	4.2	Carbohydrate metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	4.3	Carbohydrate metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
5	5.1	Lipid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	5.2	Lipid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	5.3	Lipid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
6	6.1	Lipid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	6.2	Lipid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	6.3	Lipid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
7	7.1	Amino acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	7.2	Amino acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	7.3	Amino acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
8	8.1	Amino acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	8.2	Amino acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	8.3	Amino acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
9	9.1	Amino acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	9.2	Amino acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1

	9.3	Amino acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
10	10.1	Nucleic acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	10.2	Nucleic acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	10.3	Nucleic acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
11	11.1	Nucleic acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	11.2	Nucleic acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	11.3	Nucleic acid metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
12	12.1	Urea cycle, inborn error of metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	12.2	Urea cycle, inborn error of metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	12.3	Urea cycle, inborn error of metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
13	13.1	Cell signalling	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	13.2	Cell signalling	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	13.3	Cell signalling	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
14	14.1	Cell signalling	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	14.2	Cell signalling	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	14.3	Cell signalling	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
15	15.1	Discussion of general topics of metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	Reference 1
	15.2	Discussion of general topics of metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams	
		15.3	Discussion of general topics of metabolism	A1, A2, B1, B2, C1, C2	Face to Face	Lecture Room	Synchronous	Written Exams

## 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
Assignments					
Quizzes					
Lab Reports					
First Exam	30	Overview of metabolism and basic metabolic pathways, bioenergetics, carbohydrate metabolism, lipid metabolism		7	In campus
Second Exam or (Mid Exam)	20	Amino acid metabolism, nucleic acid metabolism		12	In campus
Final Exam	50	All chapters		16	In campus

## 23 Course Requirements

**(e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):** Students are directed and encouraged to use all possible resources:

- use the internet as a learning source.
- a series of short movies is needed.

## 24 Course Policies:

- A- Attendance policies: Regular class *attendance* is expected, *attendance* by *seating* number.
- B- Absences from exams and submitting assignments on time: Reporting a valid reason of absence is accepted.
- C- Health and safety procedures: All students should comply with the university health and safety procedures
- D- Honesty policy regarding cheating, plagiarism, misbehavior: All students should comply with the university Honesty policy regarding cheating, plagiarism, misbehavior
- E- Grading policy: Depends on the median value
- F- Available university services that support achievement in the course: Internet access



## 25 References:

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

1. Richard A. Harvey & Denise R. Ferrier. Lippincott's Illustrated Reviews: Biochemistry 7th Edition, 2013

B- Recommended books, materials, and media:

## 26 Additional information:

Name of Course Coordinator: **Dr. Abeer Al-Qatati**

Signature: *Abeer Al-Qatati* Date: 2/2024

Head of Curriculum Committee/Department: **Dr. Suzan Matar**

Signature: *Suzan Matar*

Head of Department: **Dr. Ahmed Abu siniyeh**

Signature: *Ahmed Abu siniyeh*

Head of Curriculum Committee/Faculty: **Dr. Mu'ayyad Al Hseinat**

Signature: *Mu'ayyad Al Hseinat*

Dean: **Prof. Mahmoud Jaghoub**

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