



# Faculty of Medicine

Major: Doctor of Medicine

Academic Year: 2022/2023

Subject: Biochemistry 2

## COURSE SYLLABUS

Student's Copy



## 1. Course information:

Theory		Practical	
Course Title:	Biochemistry 2	Course Title:	-
Course Code:	1001100	Course Code:	-
Co-Requisite:	-	Co-Requisite:	-
Prerequisite:	Biochemistry 1	Prerequisite:	-
Course Credit Hours:	3	Course Credit Hours:	-
Class Location:	Lecture room 2	Class Location:	-
Department:	Basic Medical Sciences		
Final Qualification:	Doctor of Medicine		

## 2. Instructor Contact Information:

Coordinator:	Ayman Elbaz
Instructor(s):	Prof. Dr. Ayman Elbaz Dr. Samia Hussein
Email:	Samiahussein82@hotmail.com
Office:	6
Office Hours:	Sunday, Tuesday, Thursday (12:00-1:00 pm)- Monday and Wednesday (10:00-11:00 am)



**3. Course Description:** Medical Biochemistry 2 deals with the metabolism of carbohydrates, lipids and proteins.

**4. Resources Available to Students:**

Handout of the University

Lippincott (Illustrated Review Series) Biochemistry 7<sup>th</sup> edition

Harpers Illustrated Biochemistry 32<sup>nd</sup> edition

**5. Teaching Methods**

- a. Lectures.
- b. Discussion and problem solving.
- c. Individual and groups activities.
- d. In- class cooptation.

**6. Intended Learning Outcomes (ILOs):**

**Upon successful completion of this course students will be able to ...**

1. Describe how carbohydrates are digested
2. Differentiate between aerobic and anaerobic glycolysis
3. Diagnose G6PD deficiency
4. Describe the steps of TCA cycle and its regulation
5. Recognize the importance and the substrates of gluconeogenesis
6. Discuss glycogen synthesis and degradation (definition, site, importance, and steps).
7. Differentiate between type 1 and type 2 diabetes mellitus
8. Identify protein digestion and nitrogen balance
9. Describe the steps of urea cycle
10. Diagnose inborn errors of amino acid metabolism
11. Describe digestion of different types of lipids
12. Recognize de novo extra-mitochondrial fatty acid biosynthesis and its regulation.
13. Identify the enzymes involved in lipolysis
14. Describe beta oxidation of fatty acids
15. Summarize lipoprotein metabolism
16. List the sites and steps of cholesterol biosynthesis



17. Recognize the site, conditions and the reactions for ketone bodies formation (ketogenesis) and ketone bodies breakdown (ketolysis)
18. Identify fatty liver and its causes and lipotropic factors.

## 7. Course Policies:

**To be explained to students at the first meeting:**

### 1. Attendance Policies:

#### A. Attendance Policy (absences and tardiness for a traditional course):

- a. Students must attend all classes of this course.
- b. Any student with an absence of 15% of the classes of any course, will be illegible to sit for the final exam and will result in a failing grade being assigned in this course.
- c. Excused absences include documented illness, deaths in the family, and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have valid excuses. Consideration will also be given to students whose dependent children experience serious illnesses.
- d. Students with a legitimate reason to miss a required activity must request an approved absence through Student Academics. Unexcused absence from a scheduled examination or quiz may result in (0 %) being assigned for that assessment. Unexcused absence from an activity for which attendance is may be considered an issue of Professionalism.
- e. Any student who arrives late will not be allowed to attend the class and will be marked absent.

#### B. Exam Attendance:

- a. A student who is more than 10 minutes late, will not be permitted to submit the exam.
- b. A student who is late more than 30 minutes will not be permitted to submit the final exam, and no student will be permitted to leave the exam center before the elapse of 30 minutes.

## 2. Exams Policies:



- a. Students are expected to take their exams on time and as scheduled by their instructors.
  - b. Student who are unable to take (quiz, midterm or final) exam due to any reason should contact their instructor immediately.
  - c. Make-up exams are of the responsibility of faculty committee.
  - d. A final exam, paper, or project is required in all courses.
  - e. Seminars and workshops are included in evaluation criteria.
  - f. Only registered undergraduate and graduate credit students are allowed to take final exams.
  - g. If you are unable to take the final exam at the scheduled time without any acceptable excuse, you may not be allowed to rearrange the final exam separately (Make-up).
  - h. If you attend the final exam and do not submit the exam sheet, or do not complete the exam for any reason, you are not allowed to complete the final exam at another time or appeal for a final make-up exam and will be assigned failing for the final exam.
  - i. If you do not take your final exam and did not withdraw from the course by the withdrawal deadline you will assign a failing grade for the final exam.
- 3. Cheating Policies:** Cheating is officially defined as giving or attempting to give, obtaining or attempting to obtain, information relative to an examination or other work that the student is expected to do alone and not in collaboration with others, or the use of material or information restricted by the instructor. Plagiarism is no lesser an offense than cheating, it means repeating another's sentences as your own, adopting a particularly apt phrase as your own, paraphrasing someone else's argument as your own, and presenting someone else's line of thinking in the development of a thesis as though it were your own.
- 4. Penalty for cheating and plagiarism:** The failing grade, shall be assigned for that piece of work to any students cheating or plagiarizing.
- 5. Mobiles:** Mobile phones should be kept turned off or silent while in class. Usage of mobile phones is not allowed in classes in any form (talking and/or texting).



## 8. Course Grading System:

Assessment Tools	Weight (100%)	Description
Exams (Midterm and Final)	100%	- MCQs
Quizzes and other assessments	0%	- MCQs

## 9. Course Outlines/ Schedule:

Week	Topic	Chapter	Reference	Estimated number of hours	Teaching method		ILOs	
					Theoretical Lectures	Practical Laboratories		
1	Digestion and absorption	Carbohydrate metabolism		3	√		1	
	Glycolysis						2	
	HMP shunt						3	
2	TCA cycle	Carbohydrate metabolism		3	√		4	
	Gluconeogenesis						5	
	Glycogen metabolism						6	
3	Diabetes Mellitus	Carbohydrate metabolism		3	√		7	
	Protein Digestion and absorption						Protein metabolism	8
	Transamination							8
4	Nitrogen balance	Protein metabolism		3	√		8	
	Urea cycle						9	
	Amino acid metabolism						10	



5	Sulfur containing amino acid metabolism	Protein metabolism		3	√		10
	Basic amino acid metabolism						10
	Aromatic Amino acid metabolism						10
6	Inborn errors of aromatic amino acids	Protein metabolism		3			10
	Branched chain amino acids metabolism						10
	Inborn errors of branched chain amino acids						10
7	Mid-term exam						
8	Digestion and absorption	Lipid metabolism		3			11
	Lipogenesis						12
	Lipolysis						13
9	Beta oxidation of fatty acids	Lipid metabolism		3			14
	Lipoprotein metabolism						15
	Cholesterol metabolism						16
10	Ketone bodies	Lipid metabolism		3			17
	Fatty liver						18
	Lipotropic factors						18
11	Revision						
12	Revision						
13	Final exam						