



Jerash University
Faculty of pharmacy

Course Syllabus

Course Title: Pharmaceutical Biochemistry II	Course code: 1101215
Course Level: second year	Course prerequisite: Pharmaceutical Biochemistry I
Lecture Time:	Credit hours: 3

Name	Rank	Office Number	Office Hours	E-mail Address
Dr. Jalal Aljamal	Full Professor	411	12:30 – 13:30	

Course module description:

This course will emphasize human biochemistry in both health and disease.

The concepts are chosen to prepare the pharmacy student for learning in subsequent courses, and for understanding the medical literature.

The generation of metabolic energy in higher organisms, with an emphasis on its regulation at the molecular, cellular and organ level. Chemical concepts and mechanisms of enzymatic catalysis are also emphasized. Included: selected topics in carbohydrate, lipid and nitrogen metabolisms; complex lipids and biological membranes; hormonal signal transduction.

Textbook

- Lehninger Principles of Biochemistry, Fourth Edition by David L. Nelson, Michael M. Cox Publisher: W. H. Freeman; latest edition

• **References:**

- Principles of biochemistry with a human focus, Garrett, Reginald H. Grisham, Charles M.,
- BOHENSKI Modern Concepts in Biochemistry latest edition , Robert C. Bohenski, Prentice Hall, Englewood Cliffs, New Jersey.
- Biochemistry Stryer, by Freeman latest edition

Students will be expected to give the same attention to this reference as given to the Module textbook.

Teaching methods:

- Lectures and discussions

Learning outcomes:

All disease, and remedies for disease, either result from or result in biochemical changes sometimes in seemingly unrelated areas of metabolism. For this reason, an objective of this course is to provide the student with an integrated view of biochemistry stressing metabolic interrelationships.

By the end of the program successful students who have attended regularly and completed required work will recognize the applicability of biochemistry to the careers to which they will be progressing.

Attendance policy:

Absence from lectures and shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

Documentation and academic honesty

All University policies regarding academic integrity apply to this course. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor.

Assessment Instruments	Marks
First examination	20%
Second examination	20%
Final examination: 50 marks	40%
Quizzes	20%
Total	100%

Course academic calendar

Week	Basic and support material to be covered	Quizzes and their due dates
(1)	Introduction. Metabolic pathways.	
(2)	Oxidation of glucose. Fructose and galactose metabolism.	2 nd Week
(3)	Molecular organization and function of mitochondria.	
(4)	Pyruvate oxidation and TCA cycle. Shuttles and translocation mechanisms.	
(5)	Electron transport / Oxidative phosphorylation.	4 th Week
(6) First examination	Gluconeogenesis.	
(7)	Glycogen metabolism.	
(8)	Pentose phosphate pathway.	8 th Week
(9)	Metabolic energy from fatty acids.	
(10)	Carbohydrate to fat pathway. Metabolism of membrane lipids.	10 th Week
(11) Second examination	Lipid transport. Clinical significances of lipoprotein metabolism.	
(12)	Triglycerides & Cholesterol Hypercholesterolemia -Atherosclerosis – Hyperlipoproteinemia.	
(13)	Integration of metabolism; hormones.	13 th Week
(14)	Metabolism of amino acids. Transamination.	
(15)	Oxidative deamination. The urea cycle.	
(16)	Final Exam Week	