Philadelphia University
Faculty of pharmacy
Department of Clinical sciences
First Semester, 2017/2018

Course Syllabus

Course Title: Pharmaceutical Biochemistry 2	**Course code: 0510215**
Course Level: second year	**Course prerequisite:** **Biochemistry 1 (0510214)**
Lecture Time:	**Credit hours: 3**

Name	Rank	Office Number	Office Hours	E-mail Address
Dr. Mohammad Rasool Shomali	**Assistant Professor**	**N506**		**mshomali@philadelphia.edu.jo**

Course module description:
تركّز هذه المادة على التفاعلات الحيوية في الخلية الحية (الطاقة الحيوية) أيض الكربوهيدرات، أيض الدهون و أيض الأحماض الأمينية و أيض الأحماض النووية
This course focuses in the biochemical reactions in the biological cell (bioenergetics), including the carbohydrate, lipids, amino acids and nucleic acids metabolisms.

Course Module objectives:
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..

Course/ module components

- **Books**

Biochemistry: Lippincott's Illustrated Reviews, 5th Edition by, Richard A Harvey, Denise R. Ferrier. Lippincott Williams and Wilkins 1 Jul 2010, ISBN-13: 978-1609139988

In addition to the above, the students will be provided with handouts by the lecturer.

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.

- Cognitive skills.

Thinking and analysis skills will be developed through popup questions as competition between students.

- Communication skills.

In lecture, homework or assignments are given to students to enable them to develop team work and help them to improve their communication skills.

- Practical skills.

Students will apply the acquired knowledge in theoretical lectures in the co-requisit practical laboratory.

Assessment instruments

Allocation of Marks	
Assessment Instruments	**Mark**
First examination	**20%**
Second examination	**20%**
Final examination:	**40%**
Quizzes	**20%**
Total	**100%**

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.

Course/module academic calendar

Week	Basic and support material to be covered	Quizzes due dates
(1)	Introduction. Metabolic pathways. Digestion of dietary carbohydrates	
(2)	Glycolysis	
(3)	Gluconeogenesis	
(4)	Metabolism of mono and disaccharides Molecular organization and function of mitochondria	
(5)	Pyruvate oxidation and TCA cycle	
(6) **First examination**	Electron transport , oxidative phosphorylation Shuttles and translocation mechanisms	
(7)	Glycogen metabolism.	
(8)	Pentose phosphate pathway.	
(9)	Dietary lipid metabolism	
(10)	Synthesis of fatty acids and triacylglycerol	
(11) **Second examination**	Mobilization of fat and oxidation of fatty acids	
(12)	Ketone bodies (ketogenesis and ketolysis) Prostaglandins and related compounds	
(13)	Cholesterol and lipoproteins metabolism	
(14)	Integration of metabolism, hormones	
(15)	Metabolism of amino acids The urea cycle.	
(16)	Final Exam Week	

Expected workload:

I estimate it will require a minimum of 2 hours/credit hour (12 hours per week) outside class time to pass this course.

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.

Module references

Books

Biochemistry, Voet, D, Voet J., Fourth edition, ISBN 13 978-0470-57095-1, Wiley, 2011.

Harpers Illustrated biochemistry, Robert K. Murray, Daryl K. Granner, Victor W. Rodwell, ISBN 0-07-147885-X , New York: Lange Medical Books / McGraw Hill, .2006

Lehninger Principles of Biochemistry, Fourth Edition by David L. Nelson, Michael M. Cox Publisher: W. H. Freeman; 4th edition 2005 ISBN: 0716743396

Principles of biochemistry with a human focus, Garrett, Reginald H. Grisham, Charles M.,1st edition 2002,Harcourt College Publishers

Journals

Journal of Biological Chemistry

European Journal of Biochemistry

Biochemistry

Websites

http://www.philadelphia.edu.jo/pharmacy/resources.html
www.jbc.org
www.febsjournal.org
http://acsinfo.acs.org
www.wiley.com/college/voet
www.prenhall.com/horton
http://thepoint.lww.com/Book/Show/3391#tab_27710
www.learnerstv.com