



**Jordan University of Science and Technology**  
**Faculty of Science & Arts**  
**Applied Biological Sciences Department**

BIO741 Biochemistry

First Semester 2021-2022

**Course Catalog**

3 Credit Hours. This course is designed to provide a thorough (Advanced) introduction in Biochemistry. The class materials will provide deep coverage to molecules and biochemical processes found in living systems. Enzymes mechanisms and kinetics, Metabolism of sugars, Metabolism of proteins, Metabolism of lipids, Metabolism of nucleic acids and the integration of metabolism will be discussed and comprehensively covered.

**Text Book**

<b>Title</b>	Biochemistry
<b>Author(s)</b>	Jeremy M. Berg, John L. Tymoczko, Gregory J. Gatto Jr., Lubert Stryer
<b>Edition</b>	8th Edition
<b>Short Name</b>	1
<b>Other Information</b>	W. H. Freeman

**Instructor**

<b>Name</b>	<b>Dr. Nisreen Al-Quraan</b>
<b>Office Location</b>	PH1-L0
<b>Office Hours</b>	Sun : 11:30 - 12:30 Mon : 13:00 - 14:00 Tue : 09:30 - 10:30 Wed : 10:00 - 11:00 Thu : 12:30 - 14:30
<b>Email</b>	naquraan@just.edu.jo

**Class Schedule & Room**

Section 1:

Lecture Time: Tue, Thu : 14:30 - 16:00

Room: NF38

**Tentative List of Topics Covered**

<b>Weeks</b>	<b>Topic</b>	<b>References</b>
Week 1	Enzymes: Basic Concepts and Kinetics	From 1
Week 2	Enzymes Catalytic Strategies	From 1
Week 3	Enzymes Regulatory Strategies	From 1
Week 4	Metabolism: Basic Concepts and Design	From 1
Week 5	Glycolysis and Gluconeogenesis	From 1
Week 6	The Citric Acid Cycle	From 1
Week 7	Oxidative Phosphorylation	From 1
Week 8	The Light Reaction of Photosynthesis	From 1
Week 9	Calvin Cycle and Pentose Phosphate Pathway	From 1
Week 10	Glycogen Metabolism	From 1
Week 11	Fatty Acid Metabolism	From 1
Week 12	Protein and Amino Acids Catabolism	From 1
Week 13	Nucleotide Biosynthesis	From 1
Week 14	Biosynthesis of Membrane Lipid and Steroids	From 1
Week 15	The Integration of Metabolism	From 1

<b>Mapping of Course Outcomes to Program Student Outcomes</b>	<b>Course Outcome Weight (Out of 100%)</b>	<b>Assessment method</b>
Understanding the enzymes kinetics, catalytic strategies, enzymes eegulatory strategies and metabolic basic concepts and design. [1A]	25%	Midterm Exam
Learn and understand the carbohydrates metabolism and energy harvesting from food via comprehensive coverage of glycolysis and gluconeogenesis, the citric acid cycle and the oxidative phosphorylation. [1A]	25%	Midterm Exam
Learn and understand the light harvesting and energy transfer during the photosynthesis process through the light reaction of photosynthesis, calvin cycle and pentose phosphate pathway. [1A, 1C]	10%	Final Exam

Describe and discuss the glycogen metabolism, fatty acid metabolism in the generation and storage of energy and the synthesis of lipid compounds, the nitrogen fixation and the metabolism of nitrogen containing compounds: amino acids, purines and pyrimidines. [1A, 1C]	30%	Final Exam
Describe and explain the integration of metabolism in term of cellular signaling in nutrition, hormones, second messengers control of metabolism and the connections between metabolic pathways. [1A, 1C]	10%	Final Exam

Relationship to Program Student Outcomes (Out of 100%)					
A	B	C	D	E	F
75		25			

Evaluation	
Assessment Tool	Weight
Midterm Exam	50%
Final Exam	50%

Policy	
Attendance	Students are expected to attend all classes. Consequently, students are responsible for ALL materials posted on Elearning system, presented or assigned during the scheduled class period and are expected to obtain such information on their own should a class period be missed. Whenever possible, absences will be discussed with the instructor in advance. Class attendance will be taken in lecture. Students will be allowed three absences between every mid-term exam, and a total of six absences before the final. Absences in excess of that stated above will result in the student failing in the course.
Academic dishonesty and Make-up examinations	JUST regulations and rules will be strictly implemented. Refer to University's student information book for more details about exams, exam make up and absence rules; If you are absent from one or more of your examinations for medical or other reasons, you must provide documentary evidence to justify your absence for the consideration of a make up exam within one week or else no make up exam will be permitted.
Evaluation	Midterm Exam 50% Final Exam 50% Total 100%

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