Course Syllabus
Faculty of Arts and Science

Academic Department Basic Science and Humanities

Academic Year 2021 / 2022 Semester: First

Course Title :	Biology for Pharmacy
Course No. :	1501141
Prerequisite :	-
Concurrent :	-
Department :	Basic Science and Humanities
Coordinator :	Rula Khuzaie
Mode of Instruction	**On campus Learning** - 3 hours in-class (Synonym) learning

*** Instructor:**

Lecturer	Office Phone	Room No.	Office Hours	E-mail
Rula Khuzaie	-	*212*	(11-1) Sun , Tue Mon ,Wed	*khuzaie@asu.edu.jo*
Wafa Ahmad		*223*	(11-12) Sun , Tue Mon ,Wed	w_ahmad@asu.edu.jo

Course Description

The course deals with a brief review of the cell with details of water and the fitness of the environment, carbon and the molecular diversity of life, structure and function of macromolecules including carbohydrates, proteins, lipids and nucleic acids, a tour of the cell, membranes structure and function. The course also deals with metabolism, cellular respiration, photosynthesis, reproduction of the cell in addition to Mendel and the gene idea, molecular basis of inheritance and cellular reactions from gene to protein.

Intended Learning Outcomes

Upon the completion of the course, this module should lead to the following learning outcomes:

A. Knowledge and Understanding (Student should):

A1. Understand water's structure and properties that enable water to support all of life.

A2. Understand the concept of structure and function as a method of understanding biological activities.

A3. Understand cell theory, which explains that the cell is the basic functional unit in the organism.

A4. Understand metabolism.

A5. Understand probability law in predicting mendelian genetics. In addition to exceptions for this law.

A6. Understand the processes from gene to protein which enable the cell to express a gene.

B. Cognitive and Intellectual Skills (Student should):

B1. Define essential terms in biochemistry, cell biology, genetics and molecular biology.

B2. Recognize structure and function of water and biological molecules.

B3. Recognize cell structure and function for both prokaryotes and eukaryotes.

B4. Define metabolism and distinguish between anabolism and catabolism. Define ATP and enzymes.

B5. Recognize pathways of respiration, fermentation and photosynthesis.

B6. Describe types of cellular replication.

B7. Recognize mendelian laws and predicting the genetics of the coming offspring.

B8. Distinguish between mendelian and non-mendelian genetics.

B9. Recognize DNA replication, transcription and translation.

C. Subject Specific Skills (Student should):

C1. Distinguish between types of biological molecules.

C2. Distinguish between prokaryotic and eukaryotic cells.

C3. Utilize metabolism in understanding respiration and photosynthesis.

C4. Utilize mendelian laws in predicting the character of the offspring.

D. Transferable Skills (Student should):

D1. Integrate knowledge about water in pharmacy.
D2. Integrate cell theory in understanding diseases.
D2. Integrate laws of energy in understanding biological processes.
D3. Integrate knowledge in molecular biology in pharmacy.

Program Learning Outcomes (PLOs):

1. ----------
2. ----------
3. ----------
4. ----------
5. ----------

Course Learning Outcomes Alignment Matrix				
	CLO. 1	**CLO. 2**	**CLO. 3**	**CLO. 4**
PLO.1:	-	-	-	-
PLO 2:	-	-	-	-
PLO.3:	-	-	-	-
PLO.4:	-	-	-	-
PLO. 5	-	-	-	-

Course Contents and Schedule

Week	Day and Date	Topics to be covered	Method of instruction	CLOs	PLOs
1	Sun. 17/10/2021	Introduction Polar covalent bonds in water molecules result in hydrogen bonding	In-class lecture	A1,D1	
	Tue. Official holiday		In-class lecture		
2	Sun. 24/10/2021	Four emergent properties of water contribute to Earth's suitability for life Acidic and basic conditions affect living organisms	In-class lecture	A1,D1	
	Tue. 26/10/2021		In-class lecture		

3	Sun. 31/10/2021	A few chemical groups are key to molecular function Organic chemistry is the study of carbon compounds	In-class lecture	**A2,B1,C1**	
	Tue. 2/11/2021		In-class lecture		
4	Sun. 7/11/2021	Macromolecules are polymers, built from monomers Carbohydrates serve as fuel and building material	In-class lecture	**A2,B2,C1**	
	Tue.9/11/2021		In-class lecture		
5	Sun. 14/11/2021	Lipids are a diverse group of hydrophobic molecules Lipids are a diverse group of hydrophobic molecules	In-class lecture	**A2,B2,C1**	
	Tue.16/10/2021		In-class lecture		
6	Sun. 21/11/2021	Proteins include a diversity of structures, resulting in a wide range of functions Four Levels of Protein Structure Nucleic acids store, transmit, and help express hereditary information	In-class lecture	**A2,B2,C1**	
	Tue.23/11/2021		In-class lecture		
7	Sun. 28/11/2021	Biologists use microscopes and biochemistry to study cells Eukaryotic cells have internal membranes that compartmentalize their functions	In-class lecture	**A3,B3,C2**	
	Tue.30/11/2021		In-class lecture		
8.	**MID Term Exam**				

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9	Sun. 12/12/2021	Mitochondria and chloroplasts change energy from one form to another The cytoskeleton is a network of fibers that organizes structures and activities in the cell	In-class lecture	**A3,B3,C2**	
	Tue. 14/12/2021		In-class lecture		
10	Sun. 19/12/2021	Cellular membranes are fluid mosaics of lipids and proteins	In-class lecture	**A3,B3,C2**	
	Tue 21/12/2021		In-class lecture		
11	Sun. 26/12/2121	Membrane structure results in selective permeability Membrane structure results in selective permeability	In-class lecture	**A3,B3,C2**	
	Tue.28/12/2021		In-class lecture		
12	Sun. 2/1/2022	An introduction to metabolism Cellular respiration Photosynthesis	In-class lecture	**A4,B4,B5,B6,C3,D2**	
	Tue.4/1/2022		In-class lecture		
13	Sun. 9/1/2022	The cell cycle Meiosis and the life cycle	In-class lecture	**A5, B6,D2**	
	Tue.11/1/2022		In-class lecture		
14	Sun. 16/1/2022	Mendel and the gene idea	In-class lecture	**A5, B7 ,C4**	
	Tue.18/1/2022		In-class lecture		
15	Sun. 23/1/2022	The molecular basis of inheritance	In-class lecture	**A6,B8,D3**	
	Tue. 25/1/2022		In-class lecture		
16.	**Final Exam**				

Grading Plan and Assessment Tools

Assessment Tools	Weights	Due date
Mid-term	30	
Assignments	--	
Quizzes	20	
Inter active lectures	--	
Group Work	--	
Presentation	--	
Reports	--	
Project	--	
Case-Study	--	
Final Exam	50	

Supplementary Reading

Textbook:

Campbell, N., Reece, J. and Mitchell G. 11th Edition. Biology

References:

1- ----------

2- ----------

Subject Coordinator	**Dr. Rula Khuzaie**	**Signature:** ----------
Head of Curriculum Committee	**Dr. Husam Miqdad**	**Signature:** ----------
Department Head	**Dr. Husam Miqdad**	**Signature:** ----------
Faculty Dean	**Dr. Hadeel Alsaed**	**Signature:** ----------

Copy to:

- Department Head.
- Head of Curriculum Committee.
- Course File.