



جامعة الزيتونة الأردنية  
Al-Zaytoonah University of Jordan  
كلية العلوم وتكنولوجيا المعلومات  
Faculty of Science and Information  
Technology



فكر حضاري وحوار متمدن  
Civilized Thought ... Civilized  
Dialogue

"عراقة وجودة"  
"Tradition and Quality"

QF04/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Department of Basic Sciences
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Study Plan No.	2024/2025		University Specialization		Bachelor of Pharmacy	
Course No.	0420818		Course Name		Biology for pharmacy	
Credit Hours	3		Prerequisite *Co-requisite		-	
Course Type	<input type="checkbox"/> Mandatory University Requirement	<input type="checkbox"/> University Elective Requirement	<input checked="" type="checkbox"/> Faculty Mandatory Requirement	<input type="checkbox"/> Support course family requirements	<input type="checkbox"/> Mandatory Requirement	<input type="checkbox"/> Elective Requirement
Teaching Style	<input type="checkbox"/> Full Online Learning		<input type="checkbox"/> Blended Learning		<input checked="" type="checkbox"/> Traditional Learning	
Teaching Model	<input type="checkbox"/> 2 Synchronous: 1 Asynchronous		<input type="checkbox"/> 2 Face to Face: 1 Asynchronous		<input checked="" type="checkbox"/> 3 Traditional	

**Faculty Member and Study Divisions Information** (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail	
Dr.Ameen Al-assi	Lecturer	276	-	Ameen.alassi@zuj.edu.jo	
Office Hours (Days/Time)	Sunday, Tuesday, Thursday ()		Monday, Wednesday ()		
Division number	Time	Place	Number of Students	Teaching Style	Approved Model
				Traditional	Traditional

**Brief Description**

This course provides knowledge about the unity and diversity of life including the unique properties of living organisms, chemistry of the cell, cellular organization, plasma membrane structure and function, cell division, molecular aspects of DNA and animal tissues.

**Learning Resources**

Course Book Information (Title, author, date of issue, publisher ... etc)	Sylvia Mader, Biology, 10 <sup>th</sup> Edition, McGraw-Hill, Jan 3, 2012				
Supportive Learning Resources (Books, databases, periodicals, software, applications, others)	<ol style="list-style-type: none"> <li>Sylvia S. Mader, Michael Windelspecht, Human Biology, 15th Edition, McGraw-Hill, Jan 27, 2017</li> <li>Sylvia S. Mader, Connect 2 semester access card for biology, MCgRaw-Hill, Mar 24, 2015.</li> <li>Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Jane B. Reece, Campbell Biology, 11<sup>th</sup> Edition, San Francisco, Calif ; London : Pearson Benjamin Cummings, Oct 29, 2016</li> <li>Jane B. Reece, Martha R. Taylor, Eric J. Simon, Jean L. Dickey, Campbell Biology: Concepts &amp; Connections, 8<sup>th</sup> Edition, San Francisco, Calif ; London : Pearson Benjamin Cummings, Jan 6,2014.</li> </ol>				
Supporting Websites	-				
The Physical Environment for	<input checked="" type="checkbox"/> Class	<input type="checkbox"/> Labs	<input checked="" type="checkbox"/> Virtual	<input type="checkbox"/> Others	



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Teaching	room	Education al Platform
Necessary Equipment and Software	Moodle	
Supporting People with Special Needs	-	
For Technical Support	E-learning & Open Educational Resources Center E-mail: <a href="mailto:learning@zuj.edu.jo">learning@zuj.edu.jo</a> Phone: +962 6 4291511 ext. 425/362.	

**Course learning outcomes** (K= Knowledge, S= Skills, C= Competencies)

No.	Course Learning Outcomes	The Associated Program Learning Output Code
<b>Knowledge</b>		
<b>The student should be able to:</b>		
<b>K1</b>	Identify the basic unit of life, differences between prokaryotes and eukaryotes, and differences between organelles and structures in animal and plant cells.	<b>MK1</b>
<b>K2</b>	Outline the structure, characteristics and functions of carbohydrates, lipids, proteins, and nucleic acids.	<b>MK1</b>
<b>K3</b>	Recognize the role of the cell membrane in the processes of osmosis, diffusion, and transport.	<b>MK1</b>
<b>K4</b>	Describe the molecular basis of cell cycle, mitosis, and meiosis	<b>MK1</b>
<b>K5</b>	Understand the molecular and chromosomal basis of heredity.	<b>MK1</b>
<b>K6</b>	Describe the structure and function of DNA and RNA.	<b>MK1</b>
<b>Skills</b>		
<b>The student should be able to:</b>		
	-	
<b>Competencies</b>		
<b>The student should be able to:</b>		
	-	

**Mechanisms for Direct Evaluation of Learning Outcomes**

Type of Assessment / Learning Style	Fully Electronic Learning	Blended Learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
<b>Midterm Exam</b>	30%	30%	30%	25%
<b>Participation / Practical Applications</b>	0	0	30%	25%
<b>Asynchronous Interactive Activities</b>	20%	20%	0	0
<b>Final Exam</b>	50%	50%	40%	50%



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**Note:** Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

### Schedule of Simultaneous / Face-to-Face Encounters and their Topics

Week	Subject	Learning Style*	Reference **
1	<b>Introduction</b> <b>A View of Life</b> <ul style="list-style-type: none"><li>• How to define life</li><li>• How the biosphere is organized</li><li>• How living things are classified</li><li>• The process of science</li></ul>	Lecture	Chapter 1 pages: 2-16
2	<b>Basic Chemistry</b> Carbon: The backbone of Life <ul style="list-style-type: none"><li>• Chemical Elements</li><li>• Compound and Molecules</li><li>• Hydrogen Bonding</li></ul>	Lecture	Chapter 2 pages: 22-27
3	<b>The Chemistry of Organic Molecules</b> <ul style="list-style-type: none"><li>• Macromolecules are polymers, built from monomers</li><li>• Carbohydrates serve as fuel and building material</li><li>• Lipids are a diverse group of hydrophobic molecules</li><li>• Proteins include a diversity of structures, resulting in a wide range of functions</li><li>• Nucleic acids store, transmit, and help express hereditary information</li></ul>	Lecture	Chapter 3 pages: 37-54
4	<b>Cell Structure and Function</b> <ul style="list-style-type: none"><li>• Cellular Level of Organization</li><li>• Prokaryotic cell</li><li>• Eukaryotic cell</li></ul>	Lecture	Chapter 4 pages: 59-81
5	<b>Cell Structure and Function</b>	Lecture	Chapter 4 pages: 59-81
6	<b>Cell Structure and Function</b>	Lecture	Chapter 4 pages: 59-81
7	<b>Membrane Structure and Function</b> <ul style="list-style-type: none"><li>• Membrane Models</li><li>• Plasma membrane structure and function</li><li>• Permeability of the plasma membrane</li><li>• Modification of cell surface</li></ul>	Lecture	Chapter 5 pages: 85-99
8	<b>Membrane Structure and Function</b>	Lecture	Chapter 5



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			pages: 85-99
9	<b>Animal Organization and Homeostasis</b> <ul style="list-style-type: none"><li>Types of tissues</li><li>Organs and organ systems</li></ul>	Lecture	Chapter 31 pages: 577-587
10	<b>The Cell Cycle and Cellular Reproduction</b> <ul style="list-style-type: none"><li>The Cell Cycle</li><li>Mitosis and Cytokinesis</li><li>The Cell Cycle and Cancer</li><li>Prokaryotic Cell Division</li></ul>	Lecture	Chapter 9 pages: 151-165
11	<b>The Cell Cycle and Cellular Reproduction</b>	Lecture	Chapter 9 pages: 151-165
12	<b>Meiosis and Sexual Reproduction</b> <ul style="list-style-type: none"><li>Halving the Chromosome Number</li><li>Genetic Variation</li><li>The Phases of Meiosis</li><li>Meiosis Compared to Mitosis</li><li>The Human Life Cycle</li><li>Changes in chromosome Number</li></ul>	Lecture	Chapter 10 pages: 169-182
13	<b>Molecular Biology of The Gene</b> <ul style="list-style-type: none"><li>The Structure of DNA</li><li>Replication of DNA</li><li>The Genetic Code of Life</li><li>First step: Transcription</li><li>Second Step: Translation</li></ul>	Lecture	Chapter 12 pages: 211-229
14	<b>Molecular Biology of The Gene</b>	Lecture	Chapter 12 pages: 211-229
15	<b>Regulation of Gene Activity</b> <ul style="list-style-type: none"><li>Regulation Through Gene Mutations</li></ul>	Lecture	Chapter 13 pages: 243-245
16	<b>Final Exam</b>		

\* Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.

\*\* Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.