Course Plan for Bachelor Program - Study Plan Development and Updating Procedures/ Pharmacy Department	QF02/0408-4.0E

Study Plan No.	**2021/2022**		**University Specialization**		**Bachelor of Pharmacy**	
Course No.	**0201104**		**Course Name**		**Biology**	
Credit Hours	**3**		**Prerequisite *Co-requisite**		**-**	
Course Type	☐ Mandatory University Requirement	☐ University Elective Requirement	☑ **Faculty Mandatory Requirement**	☐ Support course family requirements	☐ Mandatory Requirement	☐ Elective Requirement
Teaching Style	☐ Full Online Learning		☐ Blended Learning		☑ **Traditional Learning**	
Teaching Model	☐ 1 Synchronous: 1 Asynchronous		☐ 1 Face to Face: 1 Asynchronous		☑ **2 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	
Office Hours (Days/Time)	**Sunday, Tuesday, Thursday ()**		**Monday, Wednesday ()**		
Division number	**Time**	**Place**	**Number of Students**	**Teaching Style**	**Approved Model**
				Traditional Learning	**2 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, 10th Edition, McGraw-Hill, Jan 3, 2012			
Supportive Learning Resources (Books, databases, periodicals, software, applications, others)	1. Sylvia S. Mader, Michael Windelspecht, Human Biology, 15th Edition, McGraw-Hill, Jan 27, 2017 2. Sylvia S. Mader, Connect 2 semester access card for biology, MCgRaw-Hill, Mar 24, 2015. 3. Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Jane B. Reece, Campbell Biology, 11th Edition, San Francisco, Calif ; London : Pearson Benjamin Cummings, Oct 29, 2016 4. Jane B. Reece, Martha R. Taylor, Eric J. Simon, Jean L. Dickey, Campbell Biology: Concepts & Connections, 8th Edition, San Francisco, Calif ; London : Pearson Benjamin Cummings, Jan 6,2014.			
Supporting Websites	-			
The Physical Environment for Teaching	☑ **Class room**	☐ Labs	☑ **Virtual Education**	☐ Others

			al Platform	
Necessary Equipment and Software	Moodle			
Supporting People with Special Needs	-			
For Technical Support	E-learning &Open Educational Resources Center E-mail: elearning@zuj.edu.jo 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
Knowledge **The student should be able to:**		
K1	Identify the basic unit of life, differences between prokaryotes and eukaryotes, and differences between organelles and structures in animal and plant cells.	**MK1**
K2	Outline the structure, characteristics and functions of carbohydrates, lipids, proteins, and nucleic acids.	**MK1**
K3	Recognize the role of the cell membrane in the processes of osmosis, diffusion, and transport.	**MK1**
K4	Describe the molecular basis of cell cycle, mitosis, and meiosis	**MK1**
K5	Understand the molecular and chromosomal basis of heredity.	**MK1**
K6	Describe the structure and function of DNA and RNA.	**MK1**
Skills **The student should be able to:**		
	-	
Competencies **The student should be able to:**		
C1	Develop his/her professional and personal performance by continuously following-up lectures and submitting tasks on time.	**MC3**

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)
Midterm Exam	30%	30%	**30%**	0%
Participation / Practical Applications	0%	0%	**20%**	50%
Asynchronous Interactive Activities	20%	20%	**0%**	0%
Final Exam	50%	50%	**50%**	50%

Note 1: *Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, and 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.*
Note 2: *According to the Regulations of granting Master's degree at Al-Zaytoonah University of Jordan, 40% of final evaluation goes for the final exam, and 60% for the semester work (examinations, reports, research or any scientific activity assigned to the student).*

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

Week	Subject	Learning Style*	Reference **
1	**Introduction** **A View of Life** • How to define life • How the biosphere is organized • How living thing are classified • The process of science	**Lecture**	**Chapter 1** **pages: 2-16**
2	**Basic Chemistry** Carbon: The backbone of Life • Chemical Elements • Compound and Molecules • Hydrogen Bonding	**Lecture**	**Chapter 2** **pages: 22-27**
3	**The Chemistry of Organic Molecules** • Macromolecules are polymers, built from monomers • Carbohydrates serve as fuel and building material • Lipids are a diverse group of hydrophobic molecules • Proteins include a diversity of structures, resulting in a wide range of functions • Nucleic acids store, transmit, and help express hereditary information	**Lecture**	**Chapter 3** **pages: 37-54**
4	**Cell Structure and Function** • Cellular Level of Organization • Prokaryotic cell • Eukaryotic cell	**Lecture**	**Chapter 4** **pages: 59-81**
5	**Cell Structure and Function**	**Lecture**	**Chapter 4** **pages: 59-81**
6	**Cell Structure and Function**	**Lecture**	**Chapter 4** **pages: 59-81**
7	**Membrane Structure and Function** • Membrane Models • Plasma membrane structure and function • Permeability of the plasma membrane • Modification of cell surface	**Lecture**	**Chapter 5** **pages: 85-99**
8	**Membrane Structure and Function**	**Lecture**	**Chapter 5**

			pages: 85-99
9	**Animal Organization and Homeostasis** • Types of tissues • Organs and organ systems **Midterm Exam**	**Lecture**	**Chapter 31** **pages: 577-587**
10	**The Cell Cycle and Cellular Reproduction** • The Cell Cycle • Mitosis and Cytokinesis • The Cell Cycle and Cancer • Prokaryotic Cell Division	**Lecture**	**Chapter 9** **pages: 151-165**
11	**The Cell Cycle and Cellular Reproduction**	**Lecture**	**Chapter 9** **pages: 151-165**
12	**Meiosis and Sexual Reproduction** • Halving the Chromosome Number • Genetic Variation • The Phases of Meiosis • Meiosis Compared to Mitosis • The Human Life Cycle • Changes in chromosome Number	**Lecture**	**Chapter 10** **pages: 169-182**
13	**Molecular Biology of The Gene** • The Structure of DNA • Replication of DNA • The Genetic Code of Life • First step: Transcription • Second Step: Translation	**Lecture**	**Chapter 12** **pages: 211-229**
14	**Molecular Biology of The Gene**	**Lecture**	**Chapter 12** **pages: 211-229**
15	**Regulation of Gene Activity** • Regulation Through Gene Mutations	**Lecture**	**Chapter 13** **pages: 243-245**
16	**Final Exam**		

** 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.*

Schedule of Asynchronous Interactive Activities *(in the case of e-learning and blended learning)*

Week	Task / Activity	Reference	Expected Results
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