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 Nursing**	
Course No.	**0201162**		**Course Name**		**Physiology for Nurses**	
Credit Hours	**3**		**Prerequisite *Co-requisite**		**Anatomy for Nurses**	
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**
				Blended Learning	**1 Face to Face: 1 Asynchronous**

Brief Description

This course provides students with basic knowledge in human physiology. The course covers the principle of homeostasis, ways of transport across the plasma membrane, as well as human body systems taking into consideration the organs, structures, function, regulation, and interactions.

Learning Resources

Course Book Information (Title, author, date of issue, publisher ... etc)	Human Physiology, Stuart Ira Fx, 2019, 15th edition, Mc Graw Hill			
Supportive Learning Resources (Books, databases, periodicals, software, applications, others)	1. Essentials of Human Anatomy and Physiology, 11th edition, Marieb E.N. (2015) Pearson Education, Inc. 2. Principles of Anatomy and Physiology, 13th edition, Gerard J. Tortora and Bryan H. Derrickson, 2012. Wiley and Sons, Inc.			
Supporting Websites	-			
The Physical Environment for Teaching	☑ **Classroom**	☐ Labs	☑ **Virtual Educational Platform**	☐ Others
Necessary Equipment and Software	E-learning Moodle			
Supporting People with Special Needs				
For Technical Support	E-Learning & Open Educational Resources Center			

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

No.	Course Learning Outcomes	The Associated Program Learning Output Code
Knowledge		
The students has to:		
K1	Define homeostasis and describe how this concept can be used to explain physiological control mechanisms.	**MK1**
K2	Illustrate the different mechanisms of transport across the cellular plasma membrane.	**MK1**
K3	Identify the structure and the main components of the Nervous, Endocrine, Cardiovascular, Respiratory, Renal, Digestive, and Reproductive systems as well as sensory organs.	**MK1**
K4	Describe the functions of the body systems covered in this course.	**MK1**
K5	Explain how the nervous system regulates other body systems to maintain homeostasis.	**MK1**
Skills		
S1	Apply nursing care properly based on the knowledge obtained about the systems of the human body covered in this course.	**MS1**
Competencies		
C1	Develop his/her professional and personal performance by continuously following-up lectures and submitting tasks on time.	**MC4**

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 to Physiology**; Homeostasis of internal environment and feedback, Negative feedback loops, Positive feedback, Intrinsic and extrinsic regulation, Neural and endocrine regulation of homeostasis.	Lecture	Chapter 1
2	**Functions of the plasma membrane:** Extracellular Environment; Diffusion and osmosis; Regulation of blood osmolality; Carrier-mediated transport; Facilitated diffusion; Active transport; Bulk transport.	Lecture	Chapter 6
3	Osmotic pressure, Molarity, molality, osmolality, tonicity. Regulation of blood osmolality. The Membrane Potential; Equilibrium potentials; Resting membrane potential; Nernst Equation, role of Na/K pump.	Lecture	Chapter 6
4	**Introduction to Nervous System:** Neurons and supporting cells; Neurons; Functional and structural classification of neurons; Neuroglial cells; Change in membrane potential; Electrical activity in axons; Ion gating in axons.	Lecture	Chapter 7
5	Action potentials; All or none law; Coding for stimulus intensity; Refractory Periods; Conduction of nerve impulses in myelinated and unmyelinated axons; Synapse; Electrical & chemical synapses; Graded potential; Actions of neurotransmitter; Acetylcholine; Chemically regulated channels; Ligand operating channels; G-Protein-operating channels; Acetylcholinesterase.	Lecture	Chapter 7
6	**Central nervous system (CNS):** regions of the brain; Ventricles of the CNS; Cerebrum, cerebral cortex, Lobes, Language, diencephalon, Hypothalamus, Cerebellum, Brainstem (Pons and Medulla oblongata, Spinal cord. Cranial and spinal nerves; Neurons; Somatic and autonomic motor neurons.	Lecture	Chapter 8
7	**The Autonomic Nervous System:** Divisions of the Autonomic nervous system; Sympathetic division; Collateral ganglia; Adrenal glands; Parasympathetic division; response to adrenergic stimulation; response to cholinergic stimulation	Lecture	Chapter 9
	Sensory organs. Cutaneous sensations, taste and smell, equilibrium and hearing, eyes and vision.	Lecture	Chapter 10
8	**The endocrine system**. Types of hormones, mechanisms of hormone action, pituitary gland, adrenals, thyroid and parathyroid glands, pancreas, other endocrine glands.	Lecture	Chapter 11
9	**Cardiovascular system (CVS):** Components of the CVS, Composition of the blood; Plasma; Formed elements of blood; Erythrocytes; Leukocytes; Platelets; Hematopoiesis; Regulation of Erythropoiesis; Blood clotting; Platelets and blood vessel walls; Clotting factors; Clotting pathways,	Lecture	Chapter 13

	intrinsic and extrinsic: formation of fibrin; Dissolution of clots; Anticoagulants. Structure of the heart: Pulmonary and systemic circulation; Atrioventricular and semilunar valves; Heart sounds **Midterm**		
10	Cardiac cycle; Pressure changes during cardiac cycle; Electrical activity of the heart and the ECG; Electrical activity of the heart; Pacemaker potential; Myocardial action potential; Conduction tissues of the heart; Conduction of the impulse; Excitation-contraction coupling in heart muscle; the Electrocardiogram.	Lecture	Chapter 13
11	**Respiratory System:** Structure of respiratory system; pathway of air Physical aspects of ventilation; Mechanics of breathing; lungs volumes and capacities, gas exchange in the lungs; Pulmonary circulation; lung ventilation/perfusion ratios, Brain stem respiratory centers, chemoreceptors. Hemoglobin and oxygen transport, Oxyhemoglobin dissociation curve. Principles of Acid – Base balance; bicarbonate as a buffer, blood pH, Acidosis, Alkalosis.	Lecture	Chapter 16
12	**Urinary system;** kidney functions, Gross anatomy of the urinary system, Nephron structure and types, Control of Micturition, Mechanism of micturition. Glomerulus and filtration barrier, formation of glomerular ultrafiltrate, glomerular filtration rate, regulation, sympathetic nerve effect, Renal Autoregulation, Reabsorption of salt and water, Reabsorption in the proximal tubule, Countercurrent multiplier system.	Lecture	Chapter 17
13	**Digestive system:** GI tract layers, mouth, Deglutition, stomach structure and gastric glands, Function of HCl, function of pepsin, stomach defense, small intestine, function, histology, structure, villi and microvilli, intestinal enzymes, intestinal motility. Large intestine, function, intestinal microbiota, fluids and electrolyte absorption, defecation,	Lecture	Chapter 18
14	Liver structure and function, lobules, hepatic portal system, enterohepatic circulation, bile production secretion, detoxification of the blood, production of plasma proteins, Pancreas structure, pancreatic juice, Enzymes, regulation of GI tract	Lecture	Chapter 18
15	**Reproduction**. Male reproductive system**,** female reproductive system**,** menstrual cycle.	Lecture	Chapter 20
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
1	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
2	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
3	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
4	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
5	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
6	Assignment (1)	Assignment on the E-Learning platform	Assignment mark
7	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
8	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
9	**Midterm Exam**		
10	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
11	Assignment (2)	Assignment on the E-Learning platform	Assignment mark
12	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
13	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
14	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
15	Watch a recorded lecture	Video on the E-learning platform	Answer questions related to the lecture
16	**Final Exam**		