



كلية الصيدلة جامعة الزيتونة الأردنية  
Faculty of Pharmacy  
Al-Zaytoonah University of Jordan  
" نحو تعليم صيدلاني متميز "

Toward Excellence in Pharmaceutical  
Education

جامعة الزيتونة الأردنية  
Al-Zaytoonah University of Jordan  
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Faculty of Pharmacy



"Tradition and Quality"

Detailed Course Description - Course Plan Development and Updating Procedures/ Pharmacy Department	QF02/0408-3.0E
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Faculty	Pharmacy	Department	Pharmacy
Course number	201235	Course title	Physiology 2
Number of credit hours	2	Pre-requisite/co-requisite	Physiology 1

### Brief course description

This course provides students with the necessary knowledge of the different organ systems of the human body; their structure, their function and the manner in which they are regulated.

Course goals and learning outcomes	
<b>Goal 1</b>	1. To describe and explain the function of each major organ/system considered within the course.
Learning outcomes	1. 1 Summarize the general functions of the body systems and major organs.
<b>Goal 2</b>	2. To describe how the nervous and endocrine systems act as communication systems within the body and how they control and regulate the senses, digestive, renal and reproductive systems.
Learning outcomes	2. 1 Give detailed description of how the nervous and endocrine systems communicate and organize the function of other body systems and organs.
<b>Goal 3</b>	3. To review the function of each organ of the sensory organs (the eye and the ear), and how the digestive, renal and reproductive systems are performing its functions.
Learning outcomes	3. 1 Describe the mechanism of performing the functions of the various body systems and how it is controlled.
<b>Textbook</b>	Human Physiology, 14 <sup>th</sup> edition, Stuart Ira Fox, McGraw Hill, 2016.
<b>Supplementary references</b>	1. Essentials of Human Anatomy and Physiology, 11 <sup>th</sup> 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. 3. <b>Online Learning Center:</b> <a href="http://highered.mheducation.com/sites/0073403628/information_center_view0/index.html">http://highered.mheducation.com/sites/0073403628/information_center_view0/index.html</a>

### Course timeline

Week	Hours	Subjects	Chapters in Textbook	Notes
1	1	<b>CENTRAL NERVOUS SYSTEM:</b> 8.2 Cerebrum: Cerebral cortex (Electroencephalogram, Sleep); Basal nuclei; Cerebral lateralization; Language; Limbic system and Emotion.	Chapter 8	209-220
	1			
2	1	8.3 Diencephalon: Thalamus and Epithalamus; Hypothalamus and Pituitary gland (Regulation of Autonomic system; regulation of circadian rhythms).	Chapter 8	225-235
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Week	Hours	Subjects	Chapters in	Notes
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			<b>Textbook</b>	
3	1 1	8.4 Midbrain and Hindbrain: Midbrain; Hindbrain; Reticular Activating System in Sleep and Arousal. 8.5 Spinal cord tracts: Ascending tracts; Descending tracts.	<b>Chapter 8</b>	<b>225-235</b>
4	1 1	<b>SENSORY PHYSIOLOGY:</b> 10.4 Vestibular Apparatus & Equilibrium: Sensory hair cells of the Vestibular apparatus; Utricule & Saccule; Semicircular canals; Neural pathways for equilibrium and balance. 10.5 The Ears & Hearing: Outer Ear; Middle Ear; Cochlea; Spiral organ (Organ of Corti); Neural pathways for hearing.	<b>Chapter 10</b>	<b>278-289</b>
5	1 1	10.6 The Eyes and Vision: Refraction; Accommodation; Visual acuity. 10.7 Retina: Effect of light on the rods; Electrical activity of retinal cells; Cones & color vision; Visual acuity & sensitivity.	<b>Chapter 10</b>	<b>290-306</b>
6	1 1	<b>DIGESTIVE SYSTEM:</b> 18.1 Introduction to the digestive system; Layers of the gastrointestinal tract (GIT); Regulation of the GIT. 18.2 From mouth to stomach: Esophagus; Stomach; Pepsin and HCl secretion.	<b>Chapter 18</b>	<b>620-628</b>
7	1 1	18.3 Small intestine: Villi and Microvilli; Intestinal Enzymes; Intestinal contractions and Motility. 18.4 Large intestine: Intestinal Microbiota; Fluid and Electrolyte Absorption in the Intestine; Defecation. 18.5 Liver: Structure of the Liver;	<b>Chapter 18</b>	<b>628-641</b>
8	1 1	Functions of the Liver; parts and functions; Pancreas. 18.6 Regulation of the digestive System: Regulation of the Gastric Function; Regulation of Intestinal Function, Regulation of Pancreatic Juice and Bile Secretion; Trophic effects of Gastrointestinal Hormones.	<b>Chapter 18</b>	<b>645-650</b>
9	1 1	<b>ENDOCRINE SYSTEM:</b> 11.1 Endocrine Glands and Hormones: Chemical classification of Hormones; Hormone interactions. 11.2 Mechanism of Hormone Action: Hormones that bind to Nuclear Receptor Proteins; Hormones that use second messengers.	<b>Chapter 11</b>	<b>318-331</b>
10	1 1	11.3 Pituitary gland: Pituitary hormones; Hypothalamic control of the Posterior Pituitary; Hypothalamic control of the Anterior Pituitary; Feedback control of the Anterior Pituitary.	<b>Chapter 11</b>	<b>345-347 331-345</b>
11	1	11.4 Adrenal glands: Functions of the adrenal Cortex; Functions of Adrenal Medulla; Stress & the Adrenal gland. 11.5 Thyroid & Parathyroid Glands: Production & action of thyroid hormones; Parathyroid gland.	<b>Chapter 11</b>	<b>331-347</b>



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11	1	<b>PHYSIOLOGY OF THE KIDNEYS:</b> 17.1 Structure & function of the Kidneys: Gross Structure of the urinary system; Control of Micturition; Microscopic Structure of the Kidney (Nephron tubules).  17.2 Glomerular Filtration: Glomerular Ultrafiltrate; Regulation of Glomerular Filtration rate.	<b>Chapter 17</b>	<b>582-590</b>
12	1	17.3 Reabsorption of Salt & Water: Reabsorption in the proximal tubule; The Countercurrent multiplier system (Ascending & Descending limbs of Henle loop; Vasa recta); Collecting duct: Effect of ADH.	<b>Chapter 17</b>	<b>590-598</b>
	1	17.4 Renal Plasma Clearance: Transport process affecting renal clearance (Tubular secretion of drugs); Reabsorption of Glucose (Glycosuria).		<b>598-604</b>
	1	17.5 Renal control of Electrolyte & Acid-base balance: Role of Aldosterone in Na <sup>+</sup> /K <sup>+</sup> balance (Sodium reabsorption, Potassium secretion).		<b>604-610</b>
13	1	Control of Aldosterone Secretion; Juxtaglomerular Apparatus (Control of Renin secretion; Role of the macula densa); Natriuretic Peptides; Relationship between Na <sup>+</sup> , K <sup>+</sup> , and H <sup>+</sup> ; Renal Acid-Base Regulation (Reabsorption of bicarbonate and secretion of H <sup>+</sup> ; Urinary buffers).	<b>Chapter 17</b>	<b>604-610</b>
	1			
14	1	<b>REPRODUCTION:</b> 20.3 Male reproductive system: Control of gonadotropin secretion (Testosterone derivatives; Testosterone secretion & age); Endocrine functions of the Testes; Male Accessory Sex Organs; Erection, Emission & ejaculation; Male fertility.	<b>Chapter 20</b>	<b>712-722</b>
	1			

<b>Theoretical course evaluation methods and weight</b>	First exam 25% Second exam 25% Final exam 50%	<b>Practical (clinical) course evaluation methods</b>	Semester students' work = 50% (Reports, research, quizzes, etc.) Final exam = 50%
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<b>Approved by head of department</b>		<b>Date of approval</b>	
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Extra information (to be updated every semester by corresponding faculty member)

<b>Name of teacher</b>	Dr. Ezeddin Salem Gassar	<b>Office Number</b>	<b>411</b>
<b>Phone number</b>	0786348685	<b>Email</b>	ezeddin.gassay@zug.edu.jo
<b>Office hours</b>	Everyday 11-12		



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