

Course Detailed Description – Procedures of the Course Plan Committee /Faculty of Pharmacy

QF02/0408–2.1E

Department	Pharmacy
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Course Name	Physiology 2	Course No.	0201235
Prerequisite	Physiology 1	Credit Hours	2
Number & date of course plan approval	First semester 2016/2017	Brief Description	See form QF02/0409

Course Objective	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.
Intended Learning Outcomes	<ol style="list-style-type: none"> 1. On completion of this course students will be able to describe and explain the function of each major organ/system considered within the course. 2. Students should learn how the nervous and endocrine systems act as communication systems within the body. 3. Students should understand the functions of senses, digestive, renal and reproductive systems and how functions are controlled, regulated and integrated through nervous and endocrine activity.
Course Topics	<ol style="list-style-type: none"> 1. Central nervous system. 2. Special senses (Eye and vision, Ear and Hearing, Vestibular apparatus and Equilibrium). 3. Digestive system. 4. Endocrine system. 5. Urinary system. 6. Reproductive system.
Text Books	Human Physiology, 14 th edition, Stuart Ira Fox, McGraw Hill, 2016.
References	<ol style="list-style-type: none"> 1. Essentials of Human Anatomy and Histology, 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. 3. Online Learning Center: http://highered.mheducation.com/sites/0073378119/student_view0/index.html
Grade Determination	<p>1st Exam = 25%</p> <p>2nd Exam = 25%</p> <p>Final Exam = 50%</p>

Course Outline				
Week	Hours	Subjects	Chapters in Textbook	Notes
1	1 1	CENTRAL NERVOUS SYSTEM: 8.2 Cerebrum: Cerebral cortex (Electroencephalogram, Sleep); Basal nuclei; Cerebral lateralization; Language; Limbic system and Emotion.	Chapter 8	209-220
2	1 1	8.3 Diencephalon: Thalamus and Epithalamus; Hypothalamus and Pituitary gland (Regulation of Autonomic system; regulation of circadian rhythms).	Chapter 8	225-235
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.	Chapter 8	225-235
4	1 1	SENSORY PHYSIOLOGY: 10.4 Vestibular Apparatus & Equilibrium: Sensory hair cells of the Vestibular apparatus; Utricle & Sacculle; 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.	Chapter 10	278-289
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.	Chapter 10	290-306
6	1 1	DIGESTIVE SYSTEM: 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.	Chapter 18	620-628
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;	Chapter 18	628-641
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.	Chapter 18	645-650

Week	Hours	Subjects	Chapters in Textbook	Notes
9	1 1	ENDOCRINE SYSTEM: 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.	Chapter 11	318-331
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.	Chapter 11	345-347 331-345
11	1 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. PHYSIOLOGY OF THE KIDNEYS: 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.	Chapter 11 Chapter 17	331-347 582-590
12	1 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. 17.4 Renal Plasma Clearance: Transport process affecting renal clearance (Tubular secretion of drugs); Reabsorption of Glucose (Glycosuria). 17.5 Renal control of Electrolyte & Acid-base balance: Role of Aldosterone in Na ⁺ /K ⁺ balance (Sodium reabsorption, Potassium secretion).	Chapter 17	590-598 598-604 604-610
13	1 1	Control of Aldosterone Secretion; Juxtaglomerular Apparatus (Control of Renin secretion; Role of the macula densa); Natriuretic Peptides; Relationship between Na ⁺ , K ⁺ , and H ⁺ ; Renal Acid-Base Regulation (Reabsorption of bicarbonate and secretion of H ⁺ ; Urinary buffers).	Chapter 17	604-610



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14	1 1	REPRODUCTION: 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.	Chapter 20	712-722
15	1 1	20.4 Female Reproductive System: Ovarian cycle; Ovulation; Pituitary-ovarian axis. 20.5 Menstrual cycle: Phases of the Menstrual Cycle: Cyclic changes in the Ovaries (Follicular phase; Ovulation; Luteal phase); Cyclic changes in the Endometrium; Menopause.	Chapter 20	722-734

Approved by Dept. Chair		Date of Approval	
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Extra Information: (Updated every semester and filled by course instructor)

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Office hours	