



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

QF02/0408–1.0

Department	Pharmacy
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Course Name	Physiology 2	Course No.	201235
Prerequisite	Physiology 1	Credit Hours	2
Number & date of course plan approval		Brief Description	See form QF02/0409

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	<ol style="list-style-type: none"> 1. Human Physiology, 12th edition, Stuart Fox, McGraw Hill, 2011. 		
References	<ol style="list-style-type: none"> 1. Guyton and Hall textbook of medical physiology, 12th edition, John E. Hall, Saunders, 2010. 2. Principles of Anatomy and Physiology, 13th edition, Gerard J. Tortora and Bryan H. Derrickson, Wiley and Sons, inc., 2012. 		
Grade Determination	<input type="checkbox"/> 1 st Exam = 25% <input type="checkbox"/> 2 nd Exam = 25% <input type="checkbox"/> Final Exam = 50%	<input type="checkbox"/> Practical Course Grade Determination	<input type="checkbox"/> Course Work = 50% (Reports, Term Papers, Quizes) <input type="checkbox"/> Final Exam = 50%



Course Outline				
Week	Hours	Subjects	Chapters in Textbook	Notes
1	1	CENTRAL NERVOUS SYSTEM: Structural organization of the brain.	Textbook/ Chapter 8	
	1	Cerebrum: Cerebral cortex; cerebral lateralization, basal nuclei,		
2	1	Language, emotion & motivation "limbic system". Diencephalon, thalamus & epithalamus.	Textbook/ Chapter 8	
	1	Hypothalamus & pituitary; regulation of autonomic system; regulation of circadian rhythms. Midbrain; Hindbrain: reticular formation. Spinal cord tracts: ascending and descending tracts.		
3	1	SENSORY PHYSIOLOGY: Vestibular apparatus & equilibrium: Sensory hair cells; Utricle & saccule; Semicircular canals.	Textbook/ Chapter 10	
	1	The ears & Hearing: Outer, Middle & Inner ear; Cochlea; Spiral organ; Neural pathways of hearing.		
4	1	The eye and vision: Refraction; Accommodation; Visual acuity.	Textbook/ Chapter 10	
	1	Retina: Effect of light on rods; Dark adaptation; Electrical activity of the retinal cells; Cons & color vision; Visual acuity & sensitivity.		
5	1	DIGESTIVE SYSTEM: Layers of the gastrointestinal tract (GIT); Regulation of the GIT. From mouth to stomach.	Textbook/ Chapter 18	
	1	Stomach: HCl secretion and its functions. Pepsinogen; Intrinsic factor function.		
6	1	Small intestine: parts and functions. Large intestine: parts and functions.	Textbook/ Chapter 18	
	1	Liver: parts and functions. Neural & endocrine regulation of digestion.		



7	1	ENDOCRINE SYSTEM: Hormones: Chemical classification; hormone interactions.	Textbook/ Chapter 11	
	1	Mechanism of hormone action: Steroid hormones; peptide & protein hormones; amino acid derivatives.		
8	1	Pituitary gland: Pituitary hormones their functions and control.	Textbook/ Chapter 11	
	1	Adrenal gland: Functions of the adrenal gland; Functions of adrenal medulla; Stress & adrenal gland.		
9	1	Thyroid & parathyroid gland: Production & action of thyroid hormones.	Textbook/ Chapter 11	
	1	Parathyroid gland.		
10	1	PHYSIOLOGY OF THE KIDNEYS: Structure & function of the kidneys: Gross structure of the urinary system; Micturition reflex.	Textbook/ Chapter 17	
	1	Microscopic structure; Nephron tubules. Glomerular filtration: Regulation of GRF; Sympathetic nerves & Renal autoregulation.		
11	1	Reabsorption of salt & water in proximal tubule; Active and passive transport; Countercurrent multiplier; Ascending & Descending limbs of Henle loop; Vasa recta; Collecting duct; Effect of ADH.	Textbook/ Chapter 17	
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12	1	Renal plasma clearance: Transport process affecting renal clearance; Tubular secretion of drugs.	Textbook/ Chapter 17	
	1	Renal clearance of inulin: measurement of GFR; Clearance calculations; Clearance of urea & PAH: measurement of renal blood flow; Reabsorption of glucose; Glycosuria.		
13	1	Renal control of electrolyte & acid-base balance: Role of aldosterone in Na ⁺ ,K ⁺ balance; Sodium reabsorption; Potassium secretion.	Textbook/ Chapter 17	



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	1	Aldosterone secretion: Juxtaglomerular apparatus; Renin secretion; Role of macula densa; Relationship between Na ⁺ , K ⁺ , and H ⁺ . Renal acid-base regulation: Reabsorption of HCO ₃ ⁻ in the proximal tubule; Urinary buffers.		
14	1	REPRODUCTION: Male reproductive system; Control of gonadotropin secretion; Testosterone derivatives in the brain; Testosterone secretion & age;	Textbook/ Chapter 20	
	1	Endocrine function of the testes; Male accessory sex organs; Erection emission & ejaculation; Male fertility.		
15	1	Female reproductive system: Ovarian cycle; Ovulation; Pituitary-ovarian axis. Menstrual cycle: Phases of menstrual cycle	Textbook/ Chapter 20	
	1	Cyclic changes in the Ovaries; Follicular phase; Ovulation; Luteal phase; Cyclic changes in the endometrium. Menopause.		
16		Final Examination		

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

Course Instructor	Dr. Luay Al-Essa
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