

Para-Medical Program

Specialization	المهارات المتخصصة
Course Number	020800141
Course Title	علم وظائف الأعضاء
Credit Hours	(3)
Theoretical Hours	(3)
Practical Hours	(0)

Course description:

This comprehensive course provides the students with a high level of understanding of the functions performed by the various parts and organs of the human body. Physiology mechanisms of body function are presented at various levels of organization. Emphasis is placed on understanding the integrated regulation of various body processes among the major systems.

Course objectives :

Intended Learning Outcomes

Upon the completion of this course the student will be able to:

A. Knowledge & Understanding

1. Acquire knowledge and understanding of the functions and the mechanisms of the body systems and organs.
2. Define physiology and its importance in homeostasis.
3. Describe the body organs' functions.

B. Intellectual skills

1. Interpret normal and abnormal physiology.
2. Match anatomical knowledge with the physiological functions.

C. Subject specific skills

1. Synthesize ideas to make a connection between knowledge of anatomy and physiology and real-world situations, including healthy lifestyle decisions.
2. Interpret graphs of physiological data.

D. Transferable skills

1. Develop a vocabulary of appropriate terminology to effectively communicate information related to physiology.
2. Integrate the anatomy of the body with its physiology.

Course outline:

Unit No.	Unit name	Unit Content	Time Needed
1	The body as a Whole	<ul style="list-style-type: none"> • Define physiology • Homeostasis • Intercellular fluid • Extracellular fluid (and its Components) • Interstitial fluid • Na⁺ & water balance 	3 hrs
2	The Tissue	<ul style="list-style-type: none"> • Cell division • Physiology of the cell • Movement of substances through the cell membrane: <ul style="list-style-type: none"> - Diffusion, osmosis, active and passive transport • General functions of body tissues (Epithelium, Connective, Muscular, Nervous) • Tissue regeneration 	3 hrs
3	Blood and Cardiovascular System	<ul style="list-style-type: none"> • Functions of the Circulatory System • Functions of blood component • Heart functions <ul style="list-style-type: none"> - Cardiac cycle - Cardiac output - Blood pressure 	6 hrs
4	Acid base balance	<ul style="list-style-type: none"> • Acid – base balance 	6hrs
	Respiratory System	<ul style="list-style-type: none"> • Functions of the organs of the respiratory system <ul style="list-style-type: none"> - Nose, larynx and Pharynx - Bronchus of bronchioles - pleura • Physiology of respiration: <ul style="list-style-type: none"> - Control of Respiration - Gaseous exchange 	
5	Nervous System	<ul style="list-style-type: none"> • Nerve impulse (Action potential) • Functions of the nervous system organs <ul style="list-style-type: none"> - Brain - Spinal cord - Peripheral nervous system - Circulation of the cerebrospinal fluid • Cranial nerves • Functions of Autonomic nervous system: <ul style="list-style-type: none"> - Sympathetic, and Parasympathetic 	6 hrs
6	Special Senses	<ul style="list-style-type: none"> • Physiology of the special senses: <ul style="list-style-type: none"> - Vision - Hearing - Olfactory - Taste 	3 hrs
7	Lymphatic System	<ul style="list-style-type: none"> • Functions of lymphatic system • Function of Lymphatic system organs and nodes • Functions of the lymphatic glands (spleen, thymus) 	3 hrs
	Endocrinology	<ul style="list-style-type: none"> • Function of the endocrine glands: <ul style="list-style-type: none"> - Pituitary Glands and Hypothalamus 	

		<ul style="list-style-type: none"> – Thyroid gland – Parathyroid – Adrenal Gland – Pancreas 	
8	Digestive System	<ul style="list-style-type: none"> • Functions of the digestive system organs <ul style="list-style-type: none"> – mouth and saliva – esophagus, stomach – small intestine, and large intestine – Liver and biliary tract • Control of Digestion • Absorption • Physiology of defecation 	3hrs
9	Genitourinary System	<ul style="list-style-type: none"> • Functions of the urinary organs: <ul style="list-style-type: none"> – The kidneys – The ureters – Urinary bladder and urethra • Physiology of urinary elimination 	2 hr
		<ul style="list-style-type: none"> • Functions of the Female reproductive system: <ul style="list-style-type: none"> – Ovaries and the fallopian tube – Uterus and Vagina – The breasts • Menstrual cycle • Puberty in female 	1 hr
		<ul style="list-style-type: none"> • Functions of the Male reproductive system: <ul style="list-style-type: none"> – Testis – Epididymis – Seminal vesicle – Prostate gland – Ejaculation • Puberty in male 	1 hr
10	The Skin	<ul style="list-style-type: none"> • Functions of the Skin and its accessories. • Wound healing 	2 hr
11	Skeletomuscular System	<ul style="list-style-type: none"> • Mechanism of bone formation • Functions of Skeletal system: <ul style="list-style-type: none"> – Skeleton – Bones – Cavities • Healing of bones • Function of joints 	2 hrs
		<ul style="list-style-type: none"> • Functions of muscles • Energy sources for muscle • Mechanism of muscle contraction • Healing of the muscles • Repair of the nerves' supply to the muscle 	3 hr

Teaching Methodology:

Lectures, Discussion. Homework's. Demonstrations/ videos/ animations. Activities. Coloring sheets.

References:

1. Moini, (2016). Anatomy and Physiology for Health Professionals, (2nd Ed.), Jones and Bartlett learning.
2. Moore, Dalley&Agur, (2014). Clinically Oriented anatomy, Lippincott & Williams.
3. Peate, I. & Nair, M. (2017). Fundamentals of Anatomy and Physiology: For Nursing and Healthcare Students (2nd Ed)
4. Mosby's Anatomy and Physiology Coloring Book (2014), (2nd Ed). Mosby.
5. Stanfield, P. S., Hui, Y. H., Cross, H. (2015). Essential Medical Terminology, Jones and Bartlett learning.