



وكالة الجامعة للشؤون التعليمية
البرامج الدراسية والتطوير

(5)

مختصر توصيف المقرر

Animal physiology

وظائف أعضاء الحيوان	:
BIOL-113	:
مقرر الأحياء العامة BIOL-101	:
لا يوجد	:
	:
3	:
Module Title:	Animal physiology
Module ID:	BIOL-113
Prerequisite (Co-requisite):	General Biology, BIOL-101
Co-requisite :	N/A
Course Level:	2 nd level
Credit Hours:	3 Hours

Module Description

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This course introduces students to the complexity of organisms by studying how their different organ systems strive to maintain internal homeostasis in the face of different environmental demands. The adaptive responses of selected organisms (humans and different animals) to a variety of environmental factors will be studied from the molecular, cell, tissue, organ, and systems level of organization. Some of the topics to be covered include biological control systems (hormones, neurons) and coordinated body functions (circulation, respiration, osmoregulation, digestion). All systems studied will be integrated by analyzing how different organisms adapt to living in normal and extreme environments (deserts, high altitude).

Module Aims

أهداف المقرر:

1	Simplify the science of physiology starting from the basic vocabulary of physiology	1
2	Studying the molecular, cellular, tissue, organ, organ system and organismal levels of structure and function for all organ systems.	2
3	Interpret the interplay between different organ systems and cellular responses to environmental change.	3

4	Analyze the interrelationships of body organ systems, homeostasis, and the complementarity of structure and function as they relate to the integumentary, musculoskeletal, nervous and endocrine systems.	4
5	Synthesize information, think independently and reason through new material in a way that not only reflects facts learned about a particular topic but also an understanding of the overall structure and function of the body organ systems.	5

Learning Outcomes:

التعليم:

1	Explore the functions of the human body emphasizing homeostasis at biochemical, cellular, organ, and system levels.	1
2	Use and discuss of functional principles at cellular and organ levels to describe the concepts of integrated systems physiology in animals.	2
3	Apply these basic physiological principles to strategies for the solution of current and emerging relevant environmental issues.	3
4	Explain and discuss the significance of these principles in interaction with a broad spectrum of public health professionals	4
5	understanding the main physiological processes concerned with different systems that how these systems co-operate to maintain our body stability	5

Course :

Contents:

ساعات التدريس (Hours)	الأسابيع (Weeks)	(Subjects)
3	1	Introduction to Physiology: <ul style="list-style-type: none"> ▪ Homeostasis. ▪ Negative and positive Feedback System. ▪ Body Fluids and Compartments ▪ Organ Systems of the Human Body
3	1	Digestive System: <ul style="list-style-type: none"> ▪ Functions of associated organs of alimentary canal. ▪ Digestion in mouth, stomach small intestine, large intestine. ▪ Metabolism of carbohydrate, protein & fat.
3	1	Cardiovascular System <ul style="list-style-type: none"> ▪ Function of Heart. ▪ Types of blood vessels ▪ Blood circulations (systemic & pulmonary) ▪ Physiology of circulation.

		<ul style="list-style-type: none"> Function of capillaries (Capillary exchange mechanism).
3	1	<p><u>Blood (Plasma , RBCs, WBCs and Platelets).</u></p> <ul style="list-style-type: none"> Formation of blood Components of blood. Functions of blood. Functions of components. <p><u>Erythrocytes:</u></p> <ul style="list-style-type: none"> Functions of RBCs count & life span. Hemoglobin & its function. <p><u>Leucocytes:</u></p> <ul style="list-style-type: none"> Functions of WBCs. Count & life span. <p><u>Platelets:</u></p> <ul style="list-style-type: none"> Functions of platelets Total count & life span <p><u>Blood Grouping</u></p>
3	1	<p><u>Respiratory System:</u></p> <ul style="list-style-type: none"> Mechanism of Breathing. Internal & external Respiration Respiratory Membrane. Respiratory volumes & capacities. Control of Respiration. Chemical regulation of respiration..
	1	<p><u>Nervous System:</u></p> <ul style="list-style-type: none"> Organization of Nervous System (structural & function classification). Types of Nervous Tissue & its functions. Nerve Impulse generation & Conduction (Action potential). Reflex Arc. Central Nervous System: <ul style="list-style-type: none"> Functions of different parts of brain and spinal cord. Function of Meninges. Peripheral Nervous System: <ul style="list-style-type: none"> Functions of Peripheral Nervous System Autonomic Nervous System: <ul style="list-style-type: none"> Functions of Sympathetic & Parasympathetic Nervous System.
3	1	<p><u>Endocrine System:</u></p> <ul style="list-style-type: none"> Definition & Functions of Hormone, chemical nature. Mechanism of Hormones action. Control of Hormone release. Glands & their associated hormones.
3	1	<p><u>Muscular System (Nerve & Muscle):</u></p> <ul style="list-style-type: none"> Nerve, stimuli, impulse definition & mechanism. membrane potential briefly function of neuron & neuroglia.

		<ul style="list-style-type: none"> ▪ Physiology of Muscle Contraction ▪ Types of Muscle. ▪ Neuromuscular transmission.
3	1	<p>Urinary System:</p> <ul style="list-style-type: none"> ▪ Main components of urinary system ▪ Function of kidneys. ▪ Nephrons ▪ Process of urine formation & composition of urine. ▪ Regulation of blood pH. ▪ Hormonal regulation of kidneys.
3	1	<p>Reproductive System.</p> <ul style="list-style-type: none"> ▪ function of reproductive organs ▪ Mechanism of formation of sperm and ova. ▪ Ovarian cycle hormones & its relationship with menstrual Cycle.

Textbook and :

References:

ISBN	Publishing Year	Publisher	اسم المؤلف (رئيسي) Author's Name	Textbook title
978-1605354712	2016	Sinauer Associates, .Inc	Richard W. Hill	Animal Physiology
	Publishing Year	Publisher	اسم المؤلف (رئيسي) Author's Name	Reference
978-0840068651	2012	Brooks Cole	Lauralee Sherwood	Animal Physiology: From Genes to Organisms
978-0321838179	2015	Pearson	Christopher D. Moyes	Principles of Animal Physiology
978-3-659-52086-0	2014	Lambert Academic Publishing	Marwan A. Ibrahim	Practical Physiology

