

King Saud University
Collage of Science
Department of Zoology

Course 531 Zoo
"علم وظائف الاعضاء متقدم Advanced Animal Physiology"

Professor: Dr. Nadia Al-Eisa

Textbooks: 1- **Physiology: A clinical core text of human physiology with self-assessment, MASTER MEDICINE, 2nd ed., J G McGeown, Churchill Livingstone, London, 2002**
Human Physiology From Cells to Systems, 4th ed., Lauralee Sherwood, Brooks/Cole, USA, 2001

Course Objectives: To emphasize the importance of control mechanisms in biological systems, and the coordination and integration of these systems to achieve the overall control of the entire organisms.

Student Evaluation:

Practical	20 marks
Presentation	10 marks
Midterm	30
Final Exam	40

Topics:

- Basic Principles and Cell Physiology
- Neuronal Physiology
- Blood and related physiology
- Cardiovascular physiology
- Respiratory Physiology
- Renal Physiology
- Gastrointestinal and digestive physiology

Course Outline (Schedule)

جدول توزيع محتويات المقرر ٥٣١ حين النظري

Week	Topics
1	Basic Principles and Cell Physiology: <ul style="list-style-type: none">• Cell, Systems and homeostasis• Energy sources in the cell
2	<ul style="list-style-type: none">• Transport across cell membrane
3	<ul style="list-style-type: none">• Electrical signals and excitable cells• Chemical signals
4	Neuronal Physiology <ul style="list-style-type: none">• Relevant structures and organization of neurons
5	<ul style="list-style-type: none">• Conduction and transmission in nerves
6	Blood and related physiology <ul style="list-style-type: none">• Blood volume and constituents• Plasma constituents• Erythrocytes
7	<ul style="list-style-type: none">• Leucocytes• Immune responses
First continuous exam (20%) For the above lectures	
8	Cardiovascular physiology <ul style="list-style-type: none">• Relevant structure• Electrical properties of the heart
9	<ul style="list-style-type: none">• Electrocardiogram (ECG)• Cardiac output
10	Respiratory Physiology <ul style="list-style-type: none">• Mechanics of pulmonary ventilation• Regulation of respiration
11	Renal Physiology <ul style="list-style-type: none">• Body fluids and their distribution• Relevant renal structure• Regulation of glomerular filtration rate and renal blood flow• Regulation of renal Na⁺ and water reabsorption
13	Gastrointestinal and digestive physiology <ul style="list-style-type: none">• Gastrointestinal motility• General features of gut motility• Regulation of gastric motility
14	<ul style="list-style-type: none">• Digestion and secretion• Absorption• Liver functions• Hormonal control of metabolic functions

محتويات مقرر 531 حين الجزء العملي

مفردات المقرر Syllabus	التاريخ الهجري	التاريخ الميلادي	الاسبوع
-----			الأول
قياس حجم خلايا الدم المنضغطة Blood Hematocrit			الثاني
تعيين الهيموجلوبين في الدم Hemoglobin Determination			الثالث
تحضير مسحة الدم Preparation of Blood smear			الرابع
عد كريات الدم البيضاء التمييزي من مسحة الدم المحضرة Differential White Cell Count			الخامس
مجاميع الدم Blood Group			السادس
تحليل الاحماض الأمينية Amino Acid Analyzes AAA			السابع
Midterm exam			الثامن
vacation			التاسع
Reflotron			العاشر
Kymograph 1			الحادي عشر
Kymograph 2			الثاني عشر
الاسموزية و الانتشار Osmosis & Diffusion			الثالث عشر
-Revision			الرابع عشر
Final exam Anatomy part			الخامس عشر