



Jordan University of Science and Technology
Faculty of Agriculture
Animal Production Department

AP321 Animal Physiology
First Semester 2020-2021

Course Catalog
<p>3 Credit Hours. The animal physiology course is of three credits total usually given over two terms (fall and summer) a year. This course is designed to introduce physiological concepts and function in living systems particularly humans and other mammals. The course focuses on human systems physiology and function at different levels with some considerations to other animal systems for comparison and to understand the mechanisms through which these systems operate. However, cellular and molecular mechanisms are discussed in order to present a current view of physiological principles. The course will include various physiological processes in animal tissues and detailed consideration of organ systems in an integrative approach, specifically; body fluids and electrolyte balance, membrane transport, renal, muscular, nervous, blood, cardiovascular, digestive, respiratory and endocrine systems.</p>

Text Book	
Title	Anatomy and Physiology of Farm Animals
Author(s)	R. D. Frandson, W. L. Wilke and A. D. Fails
Edition	7th Edition
Short Name	Course text
Other Information	2010

Course References

Short name	Book name	Author(s)	Edition	Other Information
Additional text	Text book of veterinary physiology	Cunningham	4th Edition	2007
Supplemental handouts	Supplemental (PDF) handouts	Mustafa Beni-Domi Course instructor	6th Edition	E-Learning JUST web page

Instructor	
Name	Prof. Mustafa Beni-Domi
Office Location	M1L3

Office Hours	Sun : 10:00 - 11:30 Mon : 10:00 - 11:00 Tue : 13:00 - 16:30 Wed : 11:00 - 12:00
Email	huseinmq@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue : 08:30 - 10:00 Room: منصة الكترونية

Prerequisites		
Line Number	Course Name	Prerequisite Type
931030	BIO103 General Biology	Prerequisite / Pass
612060	AP206 Principles Of Animal Science	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Course introduction, terminology and descriptive terms used in the study of anatomy and physiology.	
Week 2	Body tissues, epithelial tissues and connective tissues	
Week 3	Cell biology and membrane transport	
Week 4	Body Fluid and Electrolyte Balance	
Weeks 5, 6, 7	Renal Physiology and Regulation of Body Fluids	
Week 8	Skeletal Muscle Physiology	
Week 9	The Nervous System	
Week 10	The Blood	
Week 11	The Heart and Circulatory System	
Week 12	Endocrine Physiology	
Week 13	The Respiratory System	
Week 14	The Digestive System	
Week 15	The Male and Female Reproductive Physiology	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Know various physiological organ-systems and their importance to the integrative functions of the human body (as a model of study in this course).	3%	
Define descriptive anatomical and various directional terms, body planes and sections, body regions and cavities in animals and humans.	7%	
Know body fluid compartments and the ionic composition of body fluids, movement of water and solutes between the fluid compartments and estimation of body fluids based on body weight.	10%	
Describe the structure, function and the permeability of the cell membrane; distinguish the transport processes (passive and active) and tonicity of ICF, ECF, and the principle of osmotic pressure and calculation of steady state.	7%	
Know the components, functions, location and structural features of the kidneys and understand the series nature of the vascular network and describe the nephron structure and the processes (autoregulation, renin-angiotensin system, sympathetic nervous system) involved in the RBF, GFR and formation of urine and ADH and aldosterone influence on volume and concentration of urine.	13%	
Describe the structure, function and physiology of skeletal muscle, including excitation-contraction coupling and neuromuscular junction, sliding filament mechanism, force generation, skeletal muscle mechanics and isometric versus isotonic contractions.	10%	
Describe structural and functional organization of the nervous system divisions, including the central and peripheral nervous systems, the autonomic nervous system. Identify types of nerves; classify neurons structure, function and synaptic neurotransmission. Explain phases of the resting membrane potential and action potential and how it is propagated along the axon	10%	
Distinguish the elements of blood and describe the composition of plasma and anatomy and function of the heart and blood vessels and explain the cardiac cycle and its control; the conduction pathway and its relationship to an ECG	10%	
Identify and describe the major anatomical components of the endocrine and reproductive systems and explain the functional roles of their respective hormones, with focus on classic endocrine glands and the principles of hormone action and cell signalling.	10%	
Identify parts of the GIT and their functions and describe GIT motility, secretion, digestion, absorption and hormonal regulation of the release of gastric juice and the role of the accessory organs in the process of digestion.	10%	
Know the structure and functions of the respiratory system, including lung volumes, gas exchange, and gas transport in blood and regulation of ventilation.	10%	

Relationship to Program Student Outcomes (Out of 100%)			
SLO 1	SLO 2	SLO 3	SLO 4

Policy

Teaching & Learning Methods	<p>I use a variety of teaching techniques to keep the students engaged as active participants in the learning process. The textbook for this course is excellent, and the lecture notes are designed to highlight aspects of the text and bring in additional information to supplement the text with specific topics and illustrations. Material for class lectures and physiology laboratory is presented using PowerPoint slides of excellent diagrams taken from the textbook and other appropriate recourses. Students will be assigned homework assignments and problems to solve and will be provided with additional hand-outs to strengthen the course materials in class lectures and physiology laboratory. All class lecture notes and all laboratory paperwork and PowerPoint slides are usually posted on JUST Web in an E-Learning platform which allows students to view and download lecture notes and course materials prior to class. The laboratory component of the course is designed to reinforce the topics discussed in lecture, as well as to familiarize students with some of the laboratory techniques and equipment used in the acquisition of physiological data. All of the reading assignments are given in advance and I assume that students have read them before attending the lecture. In class, active learning exercises are made to deepen students understanding of the course material. One common form of active learning I apply is a discussion/quiz session made at the start of each class period. I allow students to ask question throughout the class period, in addition, students can meet with me in the office hours to clarify points raised. The majority if not all of the exams and questions are taken from class material and the book chapters from which the lecture notes are prepared. The pop-quizzes may be given any time during the class or lab periods which are intended to prompt students to read the assignments before class. Advanced reading enables students to better grasp the material while it is being presented. Pop-quizzes also provide incentive to concentrate during lecture and to attend class. I also advise students to do collaborative learning activities and teamwork discussion groups with their classmates.</p>
Additional Notes	<p>EXAMS: All exams are closed book and notes. Exams will have different format including multiple-choice, matching, true/false, short answer or essay, drawing and/or labeling figures and calculating where it applies etc. The final exam is comprehensive (covers all the material). Incomplete exams need approval from the department chair.</p> <p>Cheating is a violation and is considered a serious offense and will be treated in accordance with the university policies therefore, it is prohibited.</p>
Attendance	<p>Attendance in class and labs is mandatory! Lecture and Lab attendance will strongly affect your grade! The use of cell phones and other electronic devices is STRICTLY prohibited during all class periods, lab sessions and examinations. Students who are being disruptive in lectures by talking or playing computer games will be asked to leave the classroom. Re-admittance to class is at the discretion of the instructor. In case a student insists guilty of academic misconduct will be subjected to disciplinary action through the regular procedures. Students who miss 20% or more of the course lectures and labs will not be excused under any circumstance and will be subjected to penalties consistent with the university policies.</p>
Participation	<p>Participation is highly encouraged. Participation means reading the assigned material before coming to class, raising issues or asking questions and in general helping to make the class as a positive learning experience.</p>
Withdraw	<p>According to the timeline defined by the university regulations</p>

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