



Course Specifications

Course Title:	Animal Physiology (1)
Course Code:	4013331-3
Program:	General Biology
Department:	Department of biology
College:	Faculty of Applied Science
Institution:	Um Al-Qura University

Table of Contents

A. Course Identification	3
6. Mode of Instruction (mark all that apply)	3
B. Course Objectives and Learning Outcomes	3
1. Course Description	3
2. Course Main Objective.....	3
3. Course Learning Outcomes	4
C. Course Content	5
D. Teaching and Assessment	6
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods	6
2. Assessment Tasks for Students	7
E. Student Academic Counseling and Support	7
F. Learning Resources and Facilities	7
1. Learning Resources	8
2. Facilities Required.....	8
G. Course Quality Evaluation	8
H. Specification Approval Data	9

A. Course Identification

1. Credit hours: 3 hours.
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 3rd Year / Level 5.
4. Pre-requisites for this course (if any): Biochemistry (4012172-3).
5. Co-requisites for this course (if any): NA.

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	50
2	Blended	-	-
3	E-learning	-	-
4	Correspondence	-	-
5	Other	30	50

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	30
2	Laboratory/Studio	42
3	Tutorial	-
4	Others (specify)	30
	Total	102
Other Learning Hours*		
1	Study	30
2	Assignments	8
3	Library	15
4	Projects/Research Essays/Theses	10
5	Others (specify)	-
	Total	63

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

<p>1. Course Description</p> <p>The course aims to develop critical thinking skills, to apply physiological concepts and principles at the basic and applied levels, to develop a working knowledge of the major physiological systems, and to associate anatomical areas with their specific function. The main topics concentrate on the microscopic structure and functions of integumentary, digestive, circulatory, respiratory and excretory systems.</p>
<p>2. Course Main Objective</p> <p>After completing this course, students should be able to:</p>

- Develop critical thinking skills and be able to apply physiological concepts and principles at the basic and applied levels especially about digestion, blood and circulation, respiration, excretion.
- Develop a working knowledge of the major physiological systems, and be able to associate anatomical areas with their specific function.
- Develop an understanding of the role of evolutionary processes (e.g. natural selection) in driving the organization of physiological systems.
Understand important physiological challenges animals face, how those challenges vary in relation to the animals' environment, and the processes by which animals deal with these challenges.
- Identify and describe structural differences of major physiological systems that characterize different taxonomic groups of animals.
- Relate physiological processes, from the biochemical to the system level, to the function of the entire organism in its environment.
- Learn to properly and safely use animals and modern laboratory equipment to conduct physiological research.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge:	
1.1	Identify and describe the specific functions of the studied organs	
1.2	Know the anatomical, microscopical anatomy and functions of: integumentary, digestive, circulatory, respiratory and excretory systems.	
1.3	Learn physiological concepts and principles of anatomical and physiological functions.	
1.4	Assimilate the basis of hematology, hemostasis, blood structure and functions. Student should know hemostasis, food digestion, absorption.	
1.5	Understand mechanisms of hemostasis, food digestion, absorption; blood circulation, organ and systemic blood supply, portal circulation.	
1.6	Recognize the blood circulation: Systemic circulation (Organ and systemic blood supply), portal circulation (hepatic and kidney portal blood supply) and how gases are exchanged.	
1.7	Realize mechanisms of respiration and gas exchange and immune response.	
1.8	Acquire the absorption and metabolism of carbohydrates, protein and lipids, in addition, the mechanisms of cell respiration and excretion.	
1.9	Identify the basis of hematology, hemostasis, blood structure and functions	
2	Skills:	
2.1	Explain the anatomy, microscopic anatomy and physiology of integumentary, digestive, circulatory, respiratory and excretory systems.	
2.2	Distinguish the structure and functions of digestive glands, in addition, endocrine glands.	
2.3	Describe or draw the anatomical and microscopic structure of: skin, digestive organs, heart and blood vessels, respiratory and excretory	

CLOs		Aligned PLOs
	organs, in addition, diagram that explain mechanisms of their physiological activities.	
2.4	Define metabolic, respiratory and excretory mechanisms.	
2.5	Apply / measure some practical physiological applications.	
2...		
3	Competence:	
3.1	Developing oral presentations and leadership activity	
3.2	Communicating personal ideas and thoughts	
3.3	Work independently, Self-learning and as part of a team,	
3.4	To examine, describe, draw, dissect or contribute reports.	

C. Course Content

No	List of Topics (16 weeks)	Contact Hours
1	Definitions, physiology of cell membrane, feedback mechanism and hemostasis. Study physiological concepts and principles of anatomical and physiological functions.	2
2	Study: Anatomical, microscopical anatomy and functions of: integumentary system.	2
3	Digestive system: Structure and function of digestive system: Microscopic anatomy of esophagus, stomach, duodenum, small and large intestine. Quiz exam	2
4	Digestive system: Digestive glands (salivary glands, liver, biliary system, pancreas). Structure and function of saliva, bile and pancreatic secretion. Mechanism of digestion, absorption and role of enzymes in digestion. Quiz exam	2
5	Digestive system: Metabolism.	2
6	Midterm exam	2
7	Circulatory system and Circulation: structure and function of the heart and blood vessels, heart sounds.	2
8	Circulatory system and Circulation: Systemic, pulmonary and portal circulations.	2
9	Study basis of hematology, hemostasis, blood structure and functions	2
10	Basis of immunity	2
11	Structure and function of respiratory system.	2
12	Mechanisms of respiration, exchange of gases, mechanism of Inspiration and exhalation.	2
13	Structure and function of excretory system: Kidney; nephrons, ureters, urinary bladder, urethra.	2
14	Mechanisms of excretion.	2
15	Revision	2
16	Final exam.	
Total		30

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		
1.1	Identify and describe the specific functions of the studied organs		
1.2	Know the anatomical, microscopical anatomy and functions of: integumentary, digestive, circulatory, respiratory and excretory systems.		
1.3	Learn physiological concepts and principles of anatomical and physiological functions.	1.Explain the structure and functions of skin, digestive, circulatory, respiratory, endocrine and excretory systems.	
1.4	Assimilate the basis of hematology, hemostasis, blood structure and functions. Student should know hemostasis, food digestion, absorption.	2.Lectures and student research papers.	- Homework and Quizzes. - Midterm and final written exams.
1.5	Understand mechanisms of hemostasis, food digestion, absorption; blood circulation, organ and systemic blood supply, portal circulation.	3.The using of visual display such as PowerPoint.	- Evaluation of reports. - Group discussions and participation in the lecture.
1.6	Recognize the blood circulation: Systemic circulation (Organ and systemic blood supply), portal circulation (hepatic and kidney portal blood supply) and how gases are exchanged.	4.Homework assignments. Discussions (connecting what they learn in the class and applying this information in laboratory).	Course work reports.
1.7	Realize mechanisms of respiration and gas exchange and immune response.		
1.8	Acquire the absorption and metabolism of carbohydrates, protein and lipids, in addition, the mechanisms of cell respiration and excretion.		
1.9	Identify the basis of hematology, hemostasis, blood structure and functions		
2.0	Skills		
2.1	Summarize the Physiological basis of Digestive, circulatory, respiratory, excretory systems. Practical activities,	1. Interactive lectures. 2. Seminars. 3. Participation of students in discussions during the lecture.	- Exam must contain questions that can measure these skills.
2.2	Categorize factors affecting on the biological processes and recording physiological parameters		- Quiz and exams. - Discussions after the lecture.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.3	Apply some physiological experiments "lab applications". Submit individual or team reports	4. Trying to explain the issues in regular and motivated manner. Follow up the students in lab and during carryout all analytical techniques.	Practical exam.
2.4	Develop critical thinking skills to apply physiological concepts and principles at the basic and applied levels.		
2.5	Relate physiological processes, from the biochemical to the system level, to the function of the entire organism in its environment.		
2.6	Dealing, safely, with lab animals and modern laboratory equipment to conduct practical physiological applications.		
2.7	Differentiate between physiological functions at cellular, tissue, organ at system levels.		
2...			
3.0	Competence		
3.1	Personal leadership activity	Follow up, correction, reorientation of their work. Discussion	Evaluation, oral exam, Written exam
3.2	Teamwork activity		
3.3	Reports and presentations		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Periodical Exam(s)	4	10 %
2	Mid Term Exam (Theoretic)	8	20 %
3	Mid Term Exam (practical)	9	10 %
4	Reports and essay	11	5 %
5	Final Practical Exam	15	15 %
6	Final Exam	16	40 %
	Total		100 %

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

2 Office hours/week

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Animal Physiology, Second Edition, Richard W. Hill, Gordon A. Wyse, and Margaret Anderson, 2008 Gerard, et al., (2008). Principles of Anatomy and Physiology John Wiley & Sons Inc., USA. Lauralee Sherwood , Hillar Klandorf, Paul Yancey (2012) Animal Physiology: From Genes to Organisms, Brooks Cole, USA.
Essential References Materials	Stuart I Fox (2010) Human Physiology, Kindle Edition, McGraw-Hill, USA.
Electronic Materials	https://www.edx.org https://www.coursera.org/learn/physiology
Other Learning Materials	CD prepared by the staff members containing U-tube videos. Biological charts, field trips

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	The areas of class rooms are suitable, concerning the number of enrolled students; and air conditioned. Lecture room equipped with a black board and Data show. Instructors use their own laptop. Physiology lab well equipped.
Technology Resources (AV, data show, Smart Board, software, etc.)	Class rooms are already provided with data show, audio-visual equipment.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Laboratory instruments & equipment: Cooling centrifuge, pH meters, flasks, beakers, screw capped tubes, slides and tips and chemicals kits.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student Feedback on Effectiveness of Teaching	Students.	Class room discussions. Questionnaires.
Evaluation of Teaching	Instructor or by the Department	Revision of student answer paper by another staff member. Analysis the grades of students.

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Prof. Dr. Hamid Mutwally; Prof. Osama Mohamed Sarhan; Dr. Zuhair Alsahhaf; Dr Azzam Alyakoob.
Reference No.	
Date	21/11/2019