Course Specifications

Course Title:	**Animal Physiology (2)**
Course Code:	**4013342-3**
Program:	**General Biology**
Department:	**Department of biology**
College:	**Faculty of Applied Science**
Institution:	**Um Al-Qura University**

Table of Contents

A. Course Identification

1. Credit hours:	**3 hours.**
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**3rd Year / Level 6.**
4. Pre-requisites for this course (if any)**:**	**Animal physiology (1) (4013331-3).**
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

1. Course Description

This course will learn more about their body especially the skeletal; muscular and coordination between muscular and nervous systems; Sensory mechanisms with their innervations.
In addition, study the basis of reproductive physiology; the structure and function of male and female reproductive systems and association s with endocrine relationships.

2. Course Main Objective

After completing this course, students should be able to:

- **Understand the structural details and basic functions of bones, and cartilages; muscles; nerve supply, control and hormonal roles; in addition, neural projection of vision, olfaction and hearing.**
- **Identify the innervation of selected organs in skeletal, muscular, nervous and endocrine importance that control relate physiological processes.**
- **Apply experimental application to some biological parameters concerned with muscular, nervous and hormonal activities.**
  Submit oral presentation about selected physiological processes.

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: Skeletal; muscular; nervous; sense organs; male and female reproductive systems.**	
1.3	**Learn physiological concepts and principles of anatomical and physiological functions of bones, testis, ovary, ovulation and menstrual cycle.**	
1.4	**Understand structure and functions of the sense organs.**	
1.5	**Assimilate the basis of neurophysiology, mechanisms of sensation (touch, tasting, olfaction, vision and hearing) and reproductive physiology,**	
1.6	**Recognize the neural connections, innervation at organ level.**	
1.7	**Realize mechanisms of neurosecretion and nerve impulses.**	
1.8	**Acquire divisions and subdivisions of axial, peripheral, skeletal systems and joints.**	
2	**Skills:**	
2.1	**Explain the different types joints.**	
2.2	**Distinguish the main divisions and subdivisions of nervous and endocrine systems.**	
2.3	**Describe or draw the anatomical and microscopic structure of: bones, joints brain, spinal cord, nerves, ganglia, gonads, in addition, diagram that explain mechanisms of their physiological activities.**	
2.4	**Define feedback response for hormonal activities, reflex arch, autonomic and somatic response.**	
2.5	**Apply / measure some practical physiological applications.**	
2…		
3	**Competence:**	
3.1	**Developing oral presentations and leader ship 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	The skeletal system (types of bone); joints; facial bones, types of vertebrae; bones of upper and lower limbs.	2
2	The muscular system (contraction and ions roles); fine structure of myofilaments, sarcomeres, sarcoplasmic reticulum; neuromuscular junctions	2
3	The nervous system: CNS, PNS and autonomic NS.	2
4	Midterm exam	2
5	Neural connections, synapses (axo-somatic, axodendritic, axo-axonic)	2
6	Microscopic structure and function of main sense organs	2
7	The sensory mechanism and neural projections of olfaction and touch.	2
8	The sensory mechanism and neural projections of visions.	2
9	The sensory mechanism and neural projections of tasting and hearing	2
10	Basis of reproductive physiology and hormonal relationships.	2
11	The reproductive male system; structure, male gonads and accessory reproductive glands.	2
12	spermatogenesis, spermiogenesis, physiological maturation of sperms, accessory reproductive glands	2
13	The reproductive female system; structure of ovary, fallopian tube, uterus and vagina	2
14	Ovulation, menstrual cycle for women; ovarian and uterine cycles;	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	Study the structure and function of skeletal, muscular, genital systems and nervous system. Study mechanism of touch, olfaction, vision, and hearing. Lectures and student research papers; visual display "PowerPoint"; Homework assignments; Discussions; Handout of lecture notes	Homework; Quizzes; oral, presentation evaluation, sheet, discussion, midterm and final exams.
1.2	Know the anatomical, microscopical anatomy and functions of: Skeletal; muscular; nervous; sense organs; male and female reproductive systems.		
1.3	Learn physiological concepts and principles of anatomical and physiological functions of bones, testis, ovary, ovulation and menstrual cycle.		
1.4	Understand structure and functions of the sense organs.		
1.5	Assimilate the basis of neurophysiology, mechanisms of sensation (touch, tasting, olfaction, vision and hearing) and reproductive physiology.		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.6	Recognize the neural connections, innervation at organ level.		
1.7	Realize mechanisms of neurosecretion and nerve impulses.		
1.8	Acquire divisions and subdivisions of axial, peripheral, skeletal systems and joints.		
1.9			
2.0	**Skills**		
2.1	Summarize the anatomical and physiological basis of: Skeletal and joints; muscular; nervous; sense organs; male and female reproductive systems. And apply the concerned practical activities,	1. Interactive lectures. 2. Seminars. 3. Participation of students in discussions during the lecture. 4. Trying to explain the issues in regular and motivated manner. Follow up the students in lab and during carryout all analytical techniques.	- Exam must contain questions that can measure these skills. - Quiz and exams. - Discussions after the lecture. Practical exam.
2.2	Categorize the physiological concepts and principles of anatomical and physiological functions of bones, testis, ovary, ovulation and menstrual cycle.		
2.3	Apply lab applications. Submit individual or team reports		
2.4	Develop critical thinking skills to summarize the structural and principle physiological concepts of touch, tasting, olfaction, vision and hearing.		
2.5	Relate and realize the neural projection and mechanisms of sensation, neurosecretion and generate nerve impulses.		
2.6	Dealing, safely, with lab animals and modern laboratory equipment to conduct practical physiological applications.		
2.7	Differentiate between physiological functions of different organs of the male and female reproductive systems.		
2.8	Précis the main divisions and subdivisions of axial, peripheral, skeletal systems and joints.		
3.0	**Competence**		
3.1	Personal leader ship activity	Follow up, correction, reorientation of their work. Discussion	Evaluation, oral exam, written exam
3.2	Teamwork activity		
…	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. Multi- media associated with the text book and the relevant websites. 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.

Item	Resources
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**