Course Specifications

Course Title:	**Animal Physiology (1)**
Course Code:	**23073360-3**
Program:	**BSc Biology.**
Department:	**Biology**
College:	**Aljumum University College**
Institution:	**Umm Al-Qura university**

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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: **5th level /3rd year**
4. Pre-requisites for this course (if any)**:** **Biochemistry (23052231-3)**
5. Co-requisites for this course (if any)**:** **None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	√	**100%**
2	**Blended**		
3	**E-learning**		
4	**Correspondence**		
5	**Other**		

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	
2	**Laboratory/Studio**	
3	**Tutorial**	
4	Practical/Field work/Internship	
5	**Others** (specify)	
	Total	
Other Learning Hours*		
1	**Study**	
2	**Assignments**	
3	**Library**	
4	**Projects/Research Essays/Theses**	
5	**Others** (specify)	
	Total	

* 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

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.

2. Course Main Objective

Intended Learning Outcome:

• Develop and devise methods to answer research questions and apply appropriate statistical tests to analyse data and present results through writing and other means.
• Learn to properly use animals and modern laboratory equipment to conduct physiological research.

After completing this course, students should be able to:

- **Develop critical thinking skills and apply physiological concepts and principles at the basic and applied levels.**
- **Develop a working knowledge of 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 and the processes by which animals deal with them.**
- **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.**
- **Develop an understanding of current research topics in animal physiology using primary literature and develop hypotheses and methodology to address these questions.**
- **Develop and devise methods to answer research questions, apply appropriate statistical tests to analyse data and present results of graphically, through writing and by other means.**
- **Learn to properly and safely use animals and modern laboratory equipment to conduct physiological research.**

3. Course Learning Outcomes

CLOs	Aligned PLOs

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	1- Student should know how hemostasis occurs and how materials digested, absorbed and cross cell membrane. 2- Student should understand how blood circulates and how gases are exchanged. 3-Student should understand the main function of central and peripheral Excretory system.	
1.2		
1.3		
1...		
2	**Skills:**	
2.1	**Cognitive Skills:** Understanding the physiological basis of cell membrane function include: 1- Understanding homeostasis. 2- To use computer and internet. 3- To describe the disorders, arise after any organ injury. 4- To identify some factors affecting on the biological processes inside living Organisms. 5- To know anatomical characteristics of living organisms. 6- To prepare some physiological experiments. 7- To recognize an overview of the tissues anatomy. 8- To refer different organs of different systems. 9- To dissect experimental animals, and identify various systems. 10- Microscopic examination to differentiate between different organs. 11- Recognizing physiological changes. **Interpersonal Skills and Responsibility** 1- Developing oral presentations. Communicating personal ideas and thoughts. 2- Work independently and as part of a team to finish some assignments. 3- Communicate results of work to others. **Communication, Information Technology and Numerical Skill** The student is able to propose solutions to some problems: 1- Use information and communication technology. 2- Use IT and communication technology in gathering and interpreting information and ideas. 3- Use the internet as a means of communication and a source of information. 4- Encourage students to use internet for searching certain electronic journals regarding topics of the course. 5- Scientific writing. 6- Use his/her observations to solve problems. 7- Doing research and conduct searches for restoring information. 8- Able to calculate and discuss the facts and logical propose methods to solve the difficulties. **Psychomotor Skills (if applicable)** 1- To examine and describe some tissues under the microscope. 2- To draw some examples of human systems.	

CLOs		Aligned PLOs
	3- To examine models of organs and systems. 4- To dissect some examples of animals. 5- To use computers and internet. 6- To contribute in the awareness programs that aim to take advantage of the wealth of animal and how to use them economically.	

C. Course Content

#	Topics	No. of Weeks	Contact Hours
1	Definitions, physiology of cell membrane, feedback mechanism and haemostasis.	2	4
2	Structure and function of digestive system, mechanism of digestion, absorption and role of enzymes in digestion and metabolism.	3	6
3	Mechanisms of respiration, exchange of gases, mechanism of Inspiration and exhalation.	3	6
4	Circulation, systemic and pulmonary circulations, blood cellular elements, heart sounds and lymph.	2	4
5	Nervous System, central nervous system, peripheral nervous system, Autonomic nervous system (Sympathetic and parasympathetic divisions).	2	4

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 1.2 ….	1- Student should know how hemostasis occurs and how materials digested, absorbed and cross cell membrane. 2- Student should understand how blood circulates and how gases are exchanged. 3-Student should understand the main function of central and peripheral Excretory system.	1- In-class lecturing where the previous knowledge is linked to the current and future topics. 2- Homework assignments. 3- Discussions (connecting what they learn in the class and applying this information in laboratory). 4- Handout of lecture notes for each topic.	1- homework and quizzes. 2- Midterm and final written exams (theoretical and practical). 3- Evaluation of reports. 4- Oral presentation. 5- Course work reports.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.0	**Skills**		
2.1	**Cognitive Skills** 1- Understanding the physiological basis of cell membrane function. 2- Understanding homeostasis. 3- To use computer and internet. 4- To describe the disorders, arise after any organ injury. 5- To identify some factors affecting on the biological processes inside living Organisms. 6- To know anatomical characteristics of living organisms. 7- To prepare some physiological experiments. 8- To recognize an overview of the tissues anatomy. 9- To refer different organs of different systems. 10- To dissect experimental animals, and identify various systems. 11- Microscopic examination to differentiate between different organs. 12- Recognizing physiological changes.	1- Application of essential scientific techniques through lectures, classes and essays. 2- Small group discussion. 3- Ask the students to make small search project during the semester. 4- Making connections between different topics across the course. 5- Class discussions (Engage students in interaction with questions and answers). 6- Homework assignments. 7- Use of microscopic illustrations. 8- Laboratory training. 9- Activities and homework.	1- Evaluation of the topics prepared by students according to the content, arrangement, and covering of the topic. 2- Midterm and final exams. Checking the homework assignments. 3- Course work reports.
2.2	**Interpersonal Skills & Responsibility** 1- Developing oral presentations, Communicating personal ideas and thoughts. 2- Work independently and as part of a team to finish some assignments. 3- Communicate results of work to others.	1- Engage student in carrying out internet search. 2- The ability to debate the scientific basis of physiological mechanisms of body systems. 3- Writing group reports. 4- Solving problems in groups during tutorial. 5- Checking the homework assignments in groups during discussion. 6- Cooperative learning and application of scientific method in thinking the scientific problem solving. 7- Work as part of a team.	1- Oral exams. 2- Evaluation of student essays assignments and search work. 3- Observation of student ethical and moral behavior. 4- Students' attendance is recorded during lectures. 5- Assessment of the student reports. 6- Grading homework assignments.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		8- Conducting group experiments and writing group reports. 9- Dividing students into groups to cooperate with each other during the experiments.	
2.3	**Communication, Information Technology, Numerical** 1- Use information and communication technology. 2- Use IT and communication technology in gathering and interpreting information and ideas. 3- Use the internet as a means of communication and a source of information. 4- Encourage students to use internet for searching certain electronic journals regarding topics of the course. 5- Scientific writing. 6- Use his/her observations to solve problems. 7- Doing research and conduct searches for restoring information. 8- Able to calculate and discuss the facts and logical propose methods to solve the difficulties.	1- Oral presentations. 2- Internet search assignments and essays. 3- Incorporating the use and utilization of computer in the course requirements. 4- Students will be asked for delivering a summary regarding certain topics related to the course.	1- Evaluation of student essays and assignments. 2- Evaluating the laboratory written reports. 3- Marks given to for good reports and presentations. 4- Evaluating during the discussion in lecture and reports. Part of the grad is put for student's written participation.
2.4	**Psychomotor:** (Description of the psychomotor skills to be developed and the level of performance **required:** 1- To examine and describe some tissues under the microscope. 2- To draw some examples of human systems. 3- To examine models of organs and systems. 4- To dissect some examples of animals. 5- To use computers and internet. 6- To contribute in the awareness programs that aim to take advantage of the wealth of animal and how to use them economically.	1- Using of microscopic illustrations. 2- Laboratory exercises and anatomy. 3- Activities and homework. Preparing researches. 4- Community participation	Evaluating the laboratory experiments, and written reports.

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%
7			
8			

***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:

- **Two hours office per week**

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	No textbook is designated. Course materials will be based on a combination of lecture notes, handouts, journal articles and various references. Following is a list of suggested (yet not required) references that you would further read as class topic(s) evolves. Recommended Books: • 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.
Essential References Materials	Stuart I Fox (2010) Human Physiology, Kindle Edition, McGraw-Hill, USA.
Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)	1. Lauralee Sherwood , Hillar Klandorf, Paul Yancey (2012) Animal Physiology: From Genes to Organisms, Brooks Cole, USA. 2. Gerard, *et al.*, (2008). Principles of Anatomy and Physiology John Wiley & Sons Inc., USA.
Electronic Materials	https://www.coursera.org/learn/physiology https://www.edx.org
Other Learning Materials	Microsoft office package. Multi- media associated with the text book and the relevant websites.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) • **Lecture room suitable for 35 students.** • **Lecture room equipped with a black board and Data show. Instructors use their own laptop.** • **Good Physiology lab.**
Technology Resources (AV, data show, Smart Board, software, etc.)	• **Computers or internet connection.** • **Active Board.** • **Data show is required in every room.**
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	**Laboratory instruments & equipment: Spectrophotometer, centrifuge, pH meters, flasks, beakers, screw capped tubes, slides and tips and chemicals kits.**

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Strategies for Obtaining Student Feedback on Effectiveness of Teaching	**Student**	**Questionnaires**

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	
Reference No.	
Date	

Head of Department

Dr. Wessam M. Filfilan

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