



Course Specifications

Course Title:	Animal Physiology 1
Course Code:	322BIO-3
Program:	Biology
Department:	Biology
College:	College of Arts and Sciences
Institution:	Najran University

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A. Course Identification

1. Credit hours: 3
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: V/ 3 rd year
4. Pre-requisites for this course (if any): non
5. Co-requisites for this course (if any): non

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	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	30
2	Laboratory/Studio	30
3	Tutorial	-
4	Others (specify) E-learning	-
	Total	60
Other Learning Hours*		
1	Study	16
2	Assignments	4
3	Library	5
4	Projects/Research Essays/Theses	5
5	Others (specify): Office hours	10
	Total	40

* 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 will provide students with the principles and basic facts of Animal Physiology and with some of the laboratory techniques and equipment used in the acquisition of physiological data. The emphasis will be on mammalian physiology but there will be some coverage of other vertebrate taxa. The course will focus on organ-system physiology; however, cellular and molecular mechanisms will be discussed in order to present a current view of physiological principles. Furthermore, emphasis will be placed on nervous, muscular, cardiovascular, renal, digestive, and endocrine physiology.

2. Course Main Objective

1. Define the main purpose of studying physiology.
2. Explain the action potential, synapses and neurotransmission.
3. Describe the renal and gastrointestinal functions.
4. Differentiate between central and autonomic nervous systems.
5. Apply basic laboratory skills and techniques for studying physiology.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge:	
1.1	Define the main purpose of studying physiology.	
1.2	Know nervous, muscular, cardiovascular, renal, digestive, and endocrine physiology.	
1.3	Enumerate the renal and gastrointestinal functions.	
1...		
2	Skills :	
2.1	-Describe the basic concepts of Animal Physiology.	
2.2	Explain the action potential, synapses and neurotransmission.	
2.3	Recognize cellular and molecular mechanisms underlying animal Physiology	
2...		
3	Competence:	
3.1	Work independently and as a team work	
3.2	Manage resources, time and other members of the group	
3.3	Communicate results of work with others	

C. Course Content: Theoretical Aspect

No	List of Topics	Contact Hours
1	Introduction to Physiology - The Resting Membrane Potential - The Action Potential - The Action Potential Propagation	2
2	Neuronal Signaling: Synapse- Neurotransmission	4
3	Organization of the Nervous System - Autonomic Nervous System Neural and Autonomic Reflexes	4
4	Introduction to Muscle Physiology - Skeletal Muscle Anatomy and Ultrastructure - Neuromuscular Junction Excitation-Contraction Coupling	4

5	Introduction to Cardiovascular Physiology - Pacemaker Potential Cardiac Action Potential- Blood	4
6	Endocrinology I. Fundamental - Endocrinology II. The Hypothalamus and the Pituitary Gland - Endocrinology III. Thyroid Gland and Parathyroid Glands - Endocrinology IV. Adrenal Glands and Endocrine Pancreas Written Exam 2.	4
7	Renal Function I. Kidney Anatomy and Nephron Ultrastructure - Renal Function II. Glomerular Filtration - Renal Function III. Tubular Transport Renal Function IV. Medullary Concentrating Mechanisms	4
8	Gastrointestinal Function I. Motility and Secretion Gastrointestinal Function II. Digestion and Absorption	4
Total		30

Practical

No	List of Topics	Contact Hours
1	Digestion - Detection of amylase enzyme. - Detection of Rennin enzyme	2
2	- Detection of Pepsin enzyme; Detection of Trypsin	2
3	- Detection of Lipase enzyme. - Detection of Unknown enzyme sample.	2
4	Urine analysis Introduction – Normal constituents of urine. -Determination of the urinary pH - Determination of the specific gravity of urine.	2
5	Abnormal constituents in Pathogenic States of Urine. - Detection of glucose in urine - Detection of protein in urine - Detection of ketone bodies in urine	2
6	- Detection of Unknown Urine sample.	2
7	Hematology analysis - To prepare and stain a blood film and identify different types of blood cells. To make a differential count of white blood cell	2
8	To find out your blood group	2
	To make RBC counting of blood	2
	To make WBC counting of blood	2
	To determine hemoglobin content of blood.	2
	To determine Packed Cell Volume (Hematocrit)	2
	To determine Clotting and Bleeding Times of blood.	2
	Revision	2
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 Chemistry of life Human anatomy of different organ systems Digestive system and metabolism	Lectures	Final and semester exams
1.2	Cardiovascular system and blood Respiratory system Urinary system Nervous system Muscular physiology	Lectures	Final and semester exams
...			
2.0	Skills		
2.1	Understand the chemical concepts and its role on our life and their role in our bodies	Student negotiations	Class room activity
2.2	The relation between different organs and their functions	Student negotiations	Class room activity
...	The mechanisms concern with digestion, metabolism, respiration, urine formation, nerve impulse and muscle contraction	Student negotiations	Class room activity
3.0	Competence		
3.1	Work independently and as a team work	Student negotiations	Class room activity
3.2	Manage recourses, time and other members of the group	Student negotiations	Class room activity
...	Communicate results of work with others	Student negotiations	Class room activity

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Practical First Exam	6	10%
2	Theoretical First Exam	6	10%
3	Practical Second Exam	12	10%
	Theoretical Second Exam	12	10%
4	Practical Final Exam	15	10%
5	Theoretical Final Exam	15	50%

*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 :

- 10 hours per week as office hours
- Academic advisor 10 hours per week

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	- Winfield Scott Hall (2008). A Text-book of physiology. Lea Brothers & Co., 1905 - Vidya Ratan (2004). Handbook of Human Physiology, seventh Edition, Gopsons Papers Ltd., Sector 60, Noida, Jaypee Brothers Medical Publishers (P) Ltd.
Essential References Materials	Mader, S (2004). Biology 8th (ed). McGraw-Hill. Inc., New York
Electronic Materials	Websites
Other Learning Materials	Films related to the course

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) 40 seats/ class room/20 seats/lab Computer access with data show and internet
Technology Resources (AV, data show, Smart Board, software,	Data show, Overhead projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Models Microscopes

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Course evaluation	Student	direct
Student-faculty meeting	Faculty, Program Leaders	indirect
Departmental council discussions	Staff members	indirect
Discussion with the group of faculty teaching the same course	Peer Reviewer	indirect
Periodical departmental revisions of each method of teaching	Peer Reviewer	indirect

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	