



## Course Specifications

<b>Course Title:</b>	<b>General Physiology</b>
<b>Course Code:</b>	<b>BIO401</b>
<b>Program:</b>	<b>Bachelor of Science in Biology</b>
<b>Department:</b>	<b>Department of Biology</b>
<b>College:</b>	<b>Faculty of Science</b>
<b>Institution:</b>	<b>University of Tabuk</b>

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## A. Course Identification

<b>1. credit hours : 3 (2 Theoretical + 1 Practical) hours</b>	
<b>2. Course type:</b>	
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"/>
<b>3. Level/year at which this course is offered:</b> Level 7/ First semester/ Fourth year	
<b>4. Pre-requisites for this course (if any):</b> General Biology 2 (BIO202)	
<b>5. Co-requisites for this course (if any):</b> None	

### 6. Mode of Instruction (mark all that apply)

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

### 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	26
2	Laboratory/Studio	26
3	Tutorial	
4	Others (specify)	
	<b>Total</b>	<b>52</b>

## B. Course Objectives and Learning Outcomes

### 1. Course Description

- This course covers topics on an introduction to general physiology, structure and function of cells and tissues of plants and animals, structure and functions of various systems of animals (Nervous System, Endocrine System, Circulatory System, Digestive System, Reproductive system and Respiratory System), the structure of kidney and its function in regulating the body fluid, and thermoregulation. In addition, this course includes topic on the nutrients, respiration and photosynthesis, structure and function of the plant transporting system, reproduction and supporting tissues of plants.

### 2. Course Main Objective

**By the end of this course, the students should be able to:**

- Demonstrate the basic knowledge of animal physiology needed for higher-level courses.
- Understanding the different anatomy and function of animal physiology systems.
- Have an enhanced knowledge and appreciation of mammalian physiology.
- Explain the basic normal structure and function of the plant body and their physiology.



- Explain how the design of a plant system makes the physiological functions efficient in the plant body.
- Perform, analyze and report on experiments and observations in physiology.

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
<b>1</b>	<b>Knowledge and understanding:</b>	
1.1	Describe the principle of physiology (animals and plants)	K1
1.2	Recognize the structure and function of systems (animals and plants).	K2
<b>2</b>	<b>Skills:</b>	
2.1	Summarize the structures and functions of systems and organs.	S1
2.2	Interpret the causes of defects of system and the organs' function and the methods of treatment.	S5
2.3	Illustrate reports on various topics (thermoregulation).	S3
<b>3</b>	<b>Values:</b>	
3.1	Show teamwork attitude.	V1
3.2	Show awareness about bioethics in physiology	V2

### C. Course Content

No	(List of Topics (Theory part	Contact Hours
1	Introduction to general physiology and Animal cell	2
2	Animals' cell, tissues	2
3	Nervous system	2
4	Endocrine system	2
5	Circulatory system	2
6	Digestive system	2
7	Kidneys and fluid regulation	2
	<b>Mid Term Exam</b>	
8	Reproductive system	2
9	Respiration system	2
10	Thermoregulation	2
11	Nutrition in Plants, Photosynthesis, Plant Respiration	2
12	Transport of water and mineral salts through plants parts and (Structure of wood and phloem), Supporting tissues	2
13	Plant reproduction	2
	<b>Final Exam</b>	
<b>Total</b>		<b>26</b>



No	(List of Topics (Laboratory part	Contact Hours
1	Introduction, Lab Safety and Essential Instruments	2
2	Examination of Bleeding time	2
3	Examination of Clotting time	2
4	RBC's diameter و Counting cells using a hemocytometer	2
5	Experiment 1: Chemical Digestion of Carbohydrate	2
6	Experiment 2: Chemical Digestion of Protein	2
7	Experiment 3: Chemical Digestion of Fat	2
	<b>Mid Term Practical Exam</b>	
8	Spirometry and Hutchinson spirometer	2
9	Photosynthesis	2
10	Transport in plants	2
11	Study of vascular bundles (transport tissue)	2
12	Study of vascular bundles (transport tissue)	2
13	Movement of water molecules	2
	<b>Final Practical Exam</b>	
<b>Total</b>		<b>26</b>

## D. Teaching and Assessment

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

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and understanding</b>		
1.1	Describe the principle of physiology (animals and plants).	<ul style="list-style-type: none"> <li>- Lectures.</li> <li>- Case studies and articles.</li> <li>- Activities and homework.</li> </ul>	<ul style="list-style-type: none"> <li>- Quizzes,</li> <li>- Homework.</li> <li>- Final exam.</li> </ul>
1.2	Recognize the structure and function of systems (animals and plants).		
<b>2.0</b>	<b>Skills</b>		
2.1	Summarize the structure and functions of systems and organs.	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Individual and small group tasks.</li> <li>- Short essay.</li> <li>- Individual presentation and working as a part of group.</li> <li>- Lab demonstration and working as a part of group.</li> </ul>	<ul style="list-style-type: none"> <li>- Assessment of lab reports and practical examinations.</li> <li>- Individual and group presentation.</li> <li>- Case studies.</li> <li>- Demonstration through charts and posters.</li> </ul>
2.2	Interpret the causes of defects of system and the organs' function and the methods of treatment.		
2.3	Illustrate reports on various topics (thermoregulation).		
<b>3.0</b>	<b>Values</b>		

3.1	Show teamwork attitude	- Essay writing.	- Oral and written scientific report.,
3.2	Show awareness about bioethics in physiology	- Lab demonstration. - Individual presentation.	- Interactive discussion and participation

## 2. Assessment Tasks for Students

#	*Assessment task	Week Due	Percentage of Total Assessment Score
1	Activities and Short Quizzes	1-13	10%
2	Midterm Theoretical Exam	8	25%
3	Midterm Practical Exam	8	10%
4	Final Practical Exam	14	15%
5	Final Theoretical Exam	15	40%

\*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:**

- Office hours: 8 hours / week.
- Academic Guidance for about 30 students as determined by admission and registration.
- Direct supervision of staff for lab works.
- Electronic communication through university web page and e-mail.

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	<ul style="list-style-type: none"> <li>✓ Randall, D., Burggren, W. and French, K. (2002).</li> <li>✓ Eckert Animal Physiology: Mechanisms and Adaptations, 5th edition. New York W.H. Freeman and Co., USA.</li> <li>✓ Rastogi, S. C. (2007). Essentials of Animal Physiology, 4 th edition. New Age International Pvt. Ltd., Publisher, ISBN: 978-81-224-2429-4.</li> <li>✓ Salisbury, F. B. Ross, C. W. (1992). Plant physiology, 4th edition. Wadsworth Pub. Co.</li> </ul>
<b>Essential References Materials</b>	<ul style="list-style-type: none"> <li>✓ Randall, D., Burggren, W. and French, K. (2002).</li> <li>✓ Eckert Animal Physiology: Mechanisms and Adaptations, 5th edition. New York W.H. Freeman and Co., USA. –</li> </ul>

	<ul style="list-style-type: none"> <li>✓ Rastogi, S. C. (2007). Essentials of Animal Physiology, 4 th edition. New Age International Pvt. Ltd., Publisher, ISBN: 978-81-224-2429-4.</li> <li>✓ Salisbury, F. B. Ross, C. W. (1992). Plant physiology, 4th edition. Wadsworth Pub. Co. Hopkins, W. G., Huner, N. P. A. and J. Wiley, J. (2004). An Introduction to Plant Physiology, John Wiley &amp; Sons, Inc.</li> </ul>
<b>Electronic Materials</b>	<ul style="list-style-type: none"> <li>✓ Websites on the internet that are relevant to the topics of the course</li> <li>✓ www.sciencedirect.com - www.plantphysiol.org</li> </ul>
<b>Other Learning Materials</b>	Multimedia associated with the text book and the relevant websites

## 2. Facilities Required

Item	Resources
<b>Accommodation</b> Classrooms, laboratories, demonstration) (.rooms/labs, etc	- A sufficient number of classrooms, well equipped -practical laboratories are available to accommodate students. -Virtual session provided by the blackboard (which allow discussions PowerPoint and video sharing)
<b>Technology Resources</b> AV, data show, Smart Board, software,) (etc	-Data show -wireless connection in the building for students and faculties
<b>Other Resources</b> Specify, e.g., if specific laboratory equipment is required, list requirements or (attach a list	Instruments required for conducting the animal physiology experiments like: microtome, electrophoretic unit, Respirometer Apparatus for plant physiology practical: T/A apparatus, Respiroscope

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	-Students	Indirect - Questionnaires.
Extent of achievement of course learning outcomes	Program committee. - Staff members. - Students.	Direct - Questionnaires. - Reports. - Meetings
Quality of learning resources	Program leaders. - Peer Reviewer	Direct & Indirect - Questionnaires. - Reports. - Meetings

**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

<b>Council / Committee</b>	Biology Department Council
<b>Reference No.</b>	
<b>Date</b>	1/6/2022

