



Course Specification

— (Bachelor)

Course Title: **Physiology-1**

Course Code: **PHYS 223**

Program: **Pharmaceutical Sciences**

Department: **Pharmacology**

College: **Pharmacy**

Institution: **Najran University**

Version: **Version-1**

Last Revision Date: **21/08/2024**

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A. General information about the course:

1. Course Identification

1. Credit hours: (3 (2+1))

2. Course type

A. ☐ University ☐ College ☐ Department ☐ Track ☒ Program
B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (3rd level/second year)

4. Course general Description:

Physiology I course primarily focuses on basic facts in human physiology tailored for pharmacy students which include organization of human body; body fluids compartments; autonomic nervous system; blood components and their functions; and functions of the cardiovascular and respiratory systems. The physiology of other body systems will be covered in semester two. This course is delivered in form of interactive lectures using power point presentation and short videos in addition to the practical sessions.

5. Pre-requirements for this course (if any):

None

6. Co-requisites for this course (if any):

None

7. Course Main Objective(s):

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

- Describe different levels of human body organization, body fluid compartments, transport across cell membrane and bioelectrical phenomena of cell membrane.
- Describe the divisions and functions of autonomic nervous system, chemical transmitters, receptors, and autonomic drugs.
- Classify and describe blood components (structures, synthesis and functions) hemostasis, blood groups, anemia, and immunity
- Describe the functions of different parts of cardiovascular system
- Describe functions and mechanisms involved in human breathing.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning	-	-
3	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 	-	-



No	Mode of Instruction	Contact Hours	Percentage
4	Distance learning	-	-

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	-
4.	Tutorial	-
5.	Others (specify)	-
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Students after completion this course will be able to: Describe the levels of organization of the human body, body fluids compartments, and the concept of homeostasis, the electrophysiology of nerve and muscle, autonomic receptors and neurotransmitters, the differences and effects of the two divisions of the ANS and cardiac muscle properties, cardiac cycle	K1	Lectures	Written exams Assignment
2.0	Skills			
2.1	Interpret scientific information gained from performing the practical experiments related to body fluid, blood	S1	Lectures Laboratory work multimedia instruction	Written exams Practical Exams



Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
	physiology, cardiovascular, and respiratory systems.			
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate leadership, skills, in addition to accountability, confidence, and independent thinking to respond to routine or unanticipated circumstances.	V1	Lectures Practice sessions Small group discussion	Observation card

C. Course Content

No	List of Topics (Theory)	Contact Hours
1.	Structure of human body, major electrolyte composition of body fluids and concept of homeostasis	1
2.	The cell organelles (mitochondria, nucleus, ribosomes,...etc)	1
3.	The Cell membrane structure, and Transport across cell membrane physiology	2
4.	Genetic Control of cell: DNA, RNA	2
5.	Genetic Control of Protein Synthesis	2
6.	Definition, physical properties and general functions of blood	1
7.	Blood components, structures, normal and abnormal count, synthesis and functions	2
8.	Red blood cells, anemia and polycythaemia	1
9.	Blood groups and blood transfusion	1
10.	White blood cells and immunity	2
11.	Hemostasis and its disorders (purpura- hemophilia- vit. K deficiency).	1
12.	Resting membrane potential and action potential	1
13.	Organization of the nervous system, organization and general functions of the autonomic nervous system	1
14.	Autonomic ganglia and neurotransmitters	1
15.	Cholinergic and adrenergic receptors with their agonist and antagonist	1
16.	Comparison between sympathetic and parasympathetic divisions	1
17.	Functions of cardiovascular system and properties of the cardiac muscle	1
18.	Conducting system of the heart and ECG	1
19.	Cardiac cycle and heart sounds	1
20.	Cardiac Output (COP)	1
21.	Arterial Blood pressure and its control	1



22	The vascular system and venous return	1
23	Pulmonary ventilation & Gas exchange	1
24	Gas transport	1
25	Control of ventilation; hypoxia; and cyanosis	1
Total		30

No	List of Topics (Practical)	Contact Hours
1.	Medical terminology	2
2.	Measurement of osmolality of solutions.	2
3.	Determination of hemoglobin content	2
4.	Taking blood sample and Determination of RBCs count	2
5.	Determination of hematocrit value	2
6.	Calculation of blood indices	2
7.	Determination of WBCs count	2
8.	Determination of ESR	2
9.	Determination of osmotic fragility	2
10.	Determination of blood groups	2
11.	Determination of bleeding and clotting time	2
12.	Measurement of blood pressure	2
13.	Recording ECG	2
14.	Lung volumes and capacities	2
15.	Lung functions test	2
Total		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	5 th week	10%
2.	Midterm Exam	8 th week	20 %
3.	Practical Quiz	9 th week	5%
4.	Assignment	14 th Week	10%
5.	Students Observation card	Per semester	5%
6.	Final Practical Exam	16 th week	10%
8.	Final Theoretical Exam	17 th week	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).



E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Guyton and Hall Textbook of Medical Physiology, 13th Edition by John E. Hall, Arthur C Guyton Hardcover, 1120 Pages, Published (2016) by Saunders ISBN: 978-4557-7005-2.
Supportive References	Ganong's Review of Medical Physiology, 25th Edition (LANGE Basic Science) 25th Edition by Kim E. Barrett (Author), Susan M. Barman (Author), Scott Boitano (Author), Heddwyn Brooks (Author) McGraw-Hill's (2016) ISBN 978-0-07-184897-8.
Electronic Materials	1. Pub Med 2. Science direct. 3. Medscape. 4. www.dlaf.nu.edu.sa
Other Learning Materials	Adam's Interactive Physiology CD Series available from http://www.adameducation.com/interactive-physiology http://www.comprehensivephysiology.com/WileyCDA/

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	1. Suitable lecture room equipped with data show and internet and sufficient number of seats. 2. Suitable laboratories equipped with health and safety tools, internet, and enough seats. 3. Blackboard collaborative system for e-learning in NU.
Technology equipment (projector, smart board, software)	1. Data show. 2. Computer software listed above. 3. Internet and Wifi- access
Other equipment (depending on the nature of the specialty)	Physiology lab equipped with recent physiology practical instruments and aids, and a multimedia projector

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Head of departments and students	Direct Indirect (Questionnaires)
Effectiveness of Students assessment	Department Faculty members and department council	Direct Direct
Quality of learning resources	Students Department faculty member	Indirect (Questionnaires) Direct
The extent to which CLOs have been achieved	Students	Questionnaires (Indirect)
Other		

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

Assessment Methods (Direct, Indirect)



G. Specification Approval

COUNCIL /COMMITTEE	PHARMACOLOGY DEPARTMENT COUNCIL
REFERENCE NO.	14460217-1071-00001
DATE	21/08/2024

