



Course Specification

— (Bachelor)

Course Title: **Principles of Physiology**

Course Code: **NRS-237**

Program: **Bachelor of Nursing**

Department: Nursing (NRS)

College: **College of Nursing**

Institution: **Majmaah University**

Version: **V4**

Last Revision Date: **June 2023**



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A. General information about the course:

1. Course Identification

1. Credit hours: (1+1+0)

2. Course type

A. University College Department Track Others

B. Required Elective

3. Level/year at which this course is offered: (2/3)

4. Course general Description:

The course takes a system approach to physiology as per the requirements of nursing specialty. Due to the close interrelationship between structure and function in biological systems, each functional physiology topic will include a brief overview of anatomic structure. The physical and chemical laws that are the basis of the physiological processes will also be covered, and applications to current biomedical research and clinically relevant situations will be included.

5. Pre-requirements for this course (if any): None

6. Pre-requirements for this course (if any): None

7. Course Main Objective(s):

Objective 1. Outline different mechanisms which are important in maintaining the body homeostasis as: normal pH, normal blood gases, regulation of arterial blood pressure, regulation of heart rate, regulation of respiration etc.

Objective 2. Explain horizontal integration of various subdivisions of anatomy with relevant physiology and biochemistry

Objective 3. Summarize the microanatomy including cytology of various structures of the human body and compare the knowledge of microstructure with function and interpret it accordingly





Objective 4. Perform and interpret some basic bedside laboratory tests (blood picture, blood grouping, bleeding time, and clotting time etc.

Objective 5. Perform and interpret some physiological records (as ECG & spiogram) and interpret basic respiratory function tests. community resources that may assist client/family in meeting their self-care demands.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	15 hrs.	33%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4	Distance learning		
5	Others (Laboratory)	30	67%

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	15 hrs.
2.	Laboratory/Studio	30 hrs.
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		45hrs

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
K1.1	Memorize and reproduce the basic physiological principles of cells and tissue, and muscular, skeletal,	K1	Lecture, & class discussion, Assignments, Weekly re-looping of previously learned material	<ul style="list-style-type: none"> • Internal Exam • Final exam Assignments





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	immune, and nervous systems.			
K1.2	Outline different mechanisms which are important in maintaining the body homeostasis as: normal pH, normal blood gases, regulation of arterial blood pressure, regulation of heart rate, regulation of respiration etc	K1	Lecture, & class discussion, Assignments, Weekly re-looping of previously learned material	<ul style="list-style-type: none"> • Internal Exam • Final exam • Assignments
2.0	Skills			
S1.1	Explain horizontal integration of various subdivisions of anatomy with relevant physiology and biochemistry	S1	Lecture, small group discussion, case studies, individual presentation	<ul style="list-style-type: none"> • Internal Exam • Final exam • Assignments
S1.2	Summarize the microanatomy including cytology of various structures of the human body and compare the knowledge of microstructure with function and interpret it accordingly	S1	Lecture, small group discussion, case studies, individual presentation	<ul style="list-style-type: none"> • Internal Exam • Final exam • Assignments
3.0	Values, autonomy, and responsibility			
V1.1	Perform and interpret some basic bedside laboratory tests (blood picture, blood grouping, bleeding time, and clotting time etc	V1	Theory, Practical, Video lectures	Quiz, Demonstration, Written Exam
V1.2	Perform and interpret some basic bedside laboratory tests (EEG,	V1	Theory, Practical, Video lectures	Quiz, Demonstration, Written Exam





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	ECG, SPO2, Heart Sound, Blood Pressure, Spirometry, Pulse, respiration etc.			

C. Course Content

No	List of Topics	Contact Hours
1.	Unit 1. Introduction to Human Physiology Definitions, Subdivisions of Physiology, organization of the Body Cells, Tissues, organs and organ systems; Homeostasis, Body fluids, Transport across the cells membranes	9
2.	Unit 2. Systems of Human Body Brief description of all the systems of the body: Cardiovascular system, Respiratory system, Integumentary system, Endocrine system, Excretory system, Nervous system, Skeletal system, Muscular system, Reproductive system, Digestive system and Lymphatic system	6
3	Digestive and functional overlap of the pancreas and liver Unit 3. Digestion and absorption of carbohydrates, proteins, lipids and minerals.	3
4	.Vascular system and mechanism of blood flow Unit 4. Vascular network of human body arteries, veins and capillaries, circulation process, heart physiology, cardiac cycle etc.	3
5	Unit 5. Blood as a tissue, its classes, composition and coagulation. Composition of blood, blood synthesis, coagulation cascade, blood groups and hemostasis	3
6	Unit 6. Human Respiratory System Respiration. Lungs structure and physiology, exchange of gasses at the surface of lungs and in tissues/cells,	6
7	Unit 7. Urinary System Structure and physiology of kidney, ureter and urinary bladder, process of urine formation, micturition, Urea cycle.	3
8	Unit 8. Human Nervous system Structure of nerve cell, physiology of nerve system, nerve conduction, classification of nervous system. Structure and functioning of brain and spinal cord.	3
9	Unit 9. Endocrine System Endocrine glands of the body, Hormones of various glands and their functions. Feedback mechanism of Hormone regulation.	3
10	Unit 10. Reproductive system Reproductive system physiology. Methods of formation of ova and sperms, ovarian cycle hormones, organized hormones and its relationship to the menstrual cycle	6
Total		45hrs





D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	6 - 7th week	10%
2.	Midterm Exam	10 - 11th week	30%
3.	Midterm Practical Exam	8th week	15%
4	Assignments	4th and 8th week	5%
5	Final Practical Exam	14 th week	10%
6	Final Written Exam	15 th or 16 th week	30%
	TOTAL		100%

*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	<ul style="list-style-type: none"> Anand Mahindra Kumar, Meena Verma (2022). <i>Human Physiology and Anatomy for Nursing and Allied Sciences</i>. Jaypee; Second edition ISBN-10: 8184489455 ISBN-13: 978-8184487800 <i>Essentials of Human Anatomy and Physiology 10th edition</i> by Elaine N. Marieb, (2022); PEARSON Education, Inc. <i>Human Physiology: An Integrated Approach (6th Edition)</i> by Dee Unglaub Silverthorn (2022)
Supportive References	<ul style="list-style-type: none"> John Clancy, Andrew McVicar (2020). <i>Physiology and Anatomy for Nurses and Healthcare Practitioners</i>. Hodder Arnold 3rd Edition. Human Physiology: From Cells to Systems by Lauralee Sherwood (2022) Principles of Human Physiology with Interactive Physiology (4th Edition) by Cindy L. Stanfield (2020)
Electronic Materials	<ul style="list-style-type: none"> www.sdl.edu.sa www.emedicine.com www.medscapenurses.com http://www.getbodysmart.com/ http://depts.washington.edu/physdx/heart/demo.html http://www.stethographics.com/main/physiology_overview.html
Other Learning Materials	<ul style="list-style-type: none"> Human Physiology Interactive CD-ROM. Robert E. Seegmiller, BYU Academic Publishing. Periodicals and web sites of Physiology: http://www.med-ed-online.org/



2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> Lecture rooms accommodating 30-40 students Laboratories accommodating 10-20 students
Technology equipment (projector, smart board, software)	<ul style="list-style-type: none"> Audio video data show facility Smart Board
Other equipment (depending on the nature of the specialty)	<ul style="list-style-type: none"> Anatomical Models and charts Routine Histological Slides of various systems

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	<ul style="list-style-type: none"> Feedback evaluation form periodically to increase instructor's awareness of the weak and strong points of his class. End of term college evaluation of course by students (to be collected by the department). End-of-term debriefing in class between students and teacher regarding what went well and what could have gone better. Small group discussion whereby instructors exchange classes and gather information from each other's students on specific points outlined by the department and the instructor being evaluated
Effectiveness of Students assessment	Instructor or Department	<ul style="list-style-type: none"> Surprise tests and general competitive exams and quizzes. Cross-review between male and female medical equipment technology departments
Quality of learning resources		
The extent to which CLOs have been achieved	Students	Course Evaluation Survey Quality of Exam Survey



Assessment Areas/Issues	Assessor	Assessment Methods
Other	Student / Faculty	<ul style="list-style-type: none"> Course evaluation survey Course improvement plan

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	DEPARTMENT COUNCIL
REFERENCE NO.	4
DATE	19.09.2023

