



The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	Physiology
2	Course number	0501105
3	Credit hours (theory, practical)	3 theory
	Contact hours (theory, practical)	45 hours
4	Prerequisites/co-requisites	0304101
5	Program title	
6	Program code	
7	Awarding institution	University of Jordan
8	Faculty	Faculty of Nursing
9	Department	Nursing
10	Level of course	Bachelor
11	Year of study and semester (s)	Year 1 and 2
12	Final Qualification	-
13	Other department (s) involved in teaching the course	-
14	Language of Instruction	English
15	Date of production/revision	2020

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Dr. Mahmoud Al Kalaldeh

Faculty of Nursing.

Variable office hours according to timetable of the coordinator, please refer to the coordinator.

m.kalaldeh@ju.edu.jo

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Dr. Rasha Dabour

Variable office hours according to timetable of the staff member, please refer to the instructor.

18. Course Description:

As stated in the approved study plan.

This course is designed to provide students with an understanding of the function & regulation of the human body and physiological integration of the organ systems to maintain homeostasis. Course content will include neural & hormonal homeostatic control mechanisms, as well as study of the blood and body fluid, musculoskeletal, cardiovascular, respiratory, digestive, urinary, autonomic nervous system, central nervous system, special senses, reproductive, and endocrine organ systems.

19. Course aims and outcomes:**A- Aims:**

The primary goal of this course is to offer a presentation of the function of the major organs and organ systems of the human body. It is expected that the student understand the unique role of each organ and organ system in maintaining health. Students should be able to describe the functions of each major organ and when appropriate define the role of physiological functional units.

Upon completion of this course the student should be knowledgeable in the following areas of bodily function: Integration of the organ systems to maintain constancy of the internal environment, regulation of homeostasis by neuronal, endocrine, and local chemical messengers, role of the Autonomic Nervous System in regulating organ function besides abasic understanding of the function of the human body and the physiological mechanisms of the operation of the nervous, respiratory and cardio-vascular systems, blood and body fluid, musculoskeletal, digestive, urinary, reproductive, and endocrine organ systems.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to

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A. Knowledge and Understanding: Student is expected to A1- Describe the function of cell membrane and proteins of plasma membranes and modalities of transport.

A2- Describe the role of plasma membrane in excitable tissues and changes in ion currents according to membrane potentials

A3- Study the contractile mechanisms of skeletal and smooth muscle cells.

A4- Classify the functional organization of the Autonomic nervous system and its general effects on body systems, besides studying the neurotransmitters and functional receptors of the ANS and its relation with suprarenal glands.

A5- Understand blood cells and body fluids composition and functions of all these elements including plasma proteins.

A6- Explain the mechanisms of heart functions including heart muscle and conductive tissue and vessels and their hemodynamics.

A7. Explain the functions of respiratory system and mechanism of respiration

A8. Describe the basic interactions that occur between several endocrine and neuroendocrine systems. Feedback control of endocrine secretions, hormone metabolism, and metabolic and physiologic responses to various hormones. Review of the endocrine and neuroendocrine interactions that regulate puberty, the menstrual cycle, pregnancy, fertility, male and female physiological function and behavior.

A9. Explain the general control of the volume and composition of body fluids attributed to kidney functions, control of glomerular filtration, nephron function, and endocrine regulation of the kidney.

A10. Understand the digestive mechanism and the function of all organs within the gastrointestinal tract.

A11. Recognize the main component of the nervous system and their function, Review the physiology of sensory receptors and different sensory pathways, explain the functional structures of the organs concerned with the special senses, including vision, auditory, vestibular, smell and taste, and their functions, receptors of sensations, and their pathway, describe the motor system including reflexes of spinal cord, motor tracts, and the motor regulators such as the basal ganglia and cerebellum, point out the neural basis of higher cortical functions such as the language, personality, learning and memory as well as sleep and alertness.

B. Intellectual Analytical and Cognitive Skills: Student is expected to B1- Analyze potential alterations in transport mechanisms and changes in ionic currents according to membrane potentials.
 B2- analyzing possible alterations in the functional structures of the skeletal muscle and impact on skeletal muscle function.
 B3- Analyzing potential changes in the activity of ANS (Autonomic Nervous System) and its receptors and the impact over body systems innervated by ANS
 B4- Analyzing alterations of cellular elements of blood and composition of body fluids and plasma proteins and potential functional changes resulting by these alterations.
 B5- analyzing alterations in cardiac muscle and conductive tissue functions and understand underlying mechanisms for generation of cardiac diseases.
 B6- analyze functional changes in vessels and mechanisms that could be involved in generating vascular diseases.
 B7- analyzing functional changes in respiratory system and impacts on homeostasis of O₂, pH and CO₂ in blood.
 B8- analyzing functional changes in endocrine system and physiologic responses to various hormones
 B9- analyzing functional changes in glomerular filtration, nephron function, and endocrine regulation of the kidney.
 B10- analyze the digestive mechanism in various organs.
 B11- analyzing sensory input to the brain and motor output from the brain to periphery Evaluate the normal functions of different components of the central nervous system and the effect of their disturbances

C. Subject- Specific Skills: Students is expected to **be familiar with;**
 C1- Action potential and resting membrane potential.
 C2- Muscle mechanics during contraction.
 C3- Blood hematology, proteins and ions tests
 C4- ECG and Blood pressure measurements
 C5- Respiratory functional test
 C6- Role of different hormones and their control mechanisms.
 C7- Kidney function & GFR
 C8- Digestive mechanism and the GI enzymes and hormones.
 C9- The role of central nervous system as the major control system in human being.

D. Transferable Key Skills: Students is expected to
 D1- Evaluate the significance of information taken in Physiology for subsequent Biomedical courses
 D2- use of different resources to understand physiological process in human body.

20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Introduction and Transport Membranes of Excitable tissues, Action potential, Graded Potential	1	Physiology section	A1 A2, B1, C1	MCQ exams	Principles of anatomy and physiology by: Derickson and Tortora 14 th edition
NM junction, Skeletal Muscle contraction & relaxation,	1-2	Physiology section	A3, B2, C2	MCQ exams	As above

muscle Metabolism, fatigue and tone. Smooth muscle Cells					
Body fluids and Blood. Blood functions & properties, RBC, WBC & platelets Hemostasis, blood grouping and types	3-4	Physiology section	A5, B4, C3	MCQ exams	As above
Cardiovascular system Autonomic Nervous system	4-6	Physiology section	A6, B5, C4 A4, B3	MCQ exams	As above
Respiratory system	7	Physiology section	A7, B6, C5	MCQ exams	As above
Endocrine & Reproduction	8-10	Physiology section	A8, B8, C6	MCQ exams	As above
Renal system	11	Physiology section	A9, B9, C7	MCQ exams	As above
Gastrointestinal system	12	Physiology section	A10, B10, C8	MCQ exams	As above
Neurophysiology & special senses	12-15	Physiology section	A11, B11, C9	MCQ exams	As above

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:
Development of ILOs is promoted through the following teaching and learning methods:

- 1- Didactic lectures presented in power point slides will be provided for students.
- 2- Assigned chapters from the text book are expected to be read by students.

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

- MCQ exams designed to achieve ILO's of the course.
- Midterm 30%, Quiz 20% and Final 50%

23. Course Policies:

A- Attendance policies: According to rules and regulation of the University, please refer to University of Jordan Students Handbook (page 13 and 14) <http://registration.ju.edu.jo/Documents/daleel.pdf>

B- Absences from exams and handing in assignments on time: According to rules and regulation of the University, please refer to University of Jordan Students Handbook (page 16 and 17) <http://registration.ju.edu.jo/Documents/daleel.pdf>

C- Honesty policy regarding cheating, plagiarism, misbehavior:

According to rules and regulation of the University, please refer to University of Jordan Students Handbook (page 62-70) <http://registration.ju.edu.jo/RegRegulations/مظن%20بيدات%20بطلان.pdf>

D- Grading policy:

Rules are preset by the Faculty and Department Councils.

E- Available university services that support achievement in the course:

Main University Library, and School of Nursing Labs.

24. Required equipment:

Nothing

25. References:

A- Required book (s), assigned reading and audio-visuals:

Principles of Anatomy and Physiology, 13th Edition
Gerard J. Tortora, Bryan H. Derrickson By John
Wiley & Sons, Inc.

B- Recommended books, materials, and media:

1. *Human physiology*, by: Lauralee Sherwood, last edition.
2. *Textbook of medical physiology by: Guyton and Hall* last edition

26. Additional information: