



The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	Physiology
2	Course number	0344363
3	Credit hours (theory, practical)	4 Credit Hour
	Contact hours (theory, practical)	3+3
4	Prerequisites/corequisites	Biology 0304102
5	Program title	Bachelor of Biological Sciences
6	Program code	0304
7	Awarding institution	The University of Jordan
8	Faculty	Faculty of Science
9	Department	Department of Biological Sciences
10	Level of course	Third Year
11	Year of study and semester (s)	First semester 2016
12	Final Qualification	Biological Sciences (BSc) and Medical Analysis (BSc) Programs
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English
15	Date of production/revision	First semester 2016

16. Course Coordinator:

Dr. Hana Hammad
Office No.: 308
Office Hour: Sunday and Tuesday 11:00 - 12:00
Email address: hhammad@ju.edu.jo

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.
None.

18. Course Description:

Basic mechanisms of human physiology: Homeostasis, signal transduction, nervous system, sensory systems, muscle, endocrine physiology, cardiovascular physiology, respiration, renal physiology and body fluid regulation.

19. Course aims and outcomes:

A- Aims:

- Explain the principles of homeostasis and negative feedback control, and provide specific examples.
- Understand the physiological functions of the major classes of biomolecules.
- Relate biological structure to function at different levels of biological organization.
- Describe the mechanisms of action of nerve and muscle cells.
- Explain mechanisms of cell signaling in the nervous, sensory, and endocrine systems.
- Outline the functions of the major organ systems of the body and provide examples of coordinated interactions among these systems.

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

A. Knowledge and Understanding Skills: Student is expected to

A1- Describe some biophysical laws and their relation to human physiology.

A2- Describe the cellular functions at the organelle and molecular level.

A3- Discuss regulation of extracellular fluid composition and volume

A4- Point out the basis of excitability (membrane potentials) in all living cells especially in nerve and muscle cells.

A5- Explain the functions of the nerve cell and muscle fiber grossly and at the molecular level.

A6- Classify the functional organization of sympathetic and parasympathetic nervous systems

A7- Describe the organization and function of the endocrine system and explain its role in regulating homeostasis of the human body

A8- describe the structure, properties and functions of muscles grossly and at the molecular level.

A9- Describe the organization and function of the cardiovascular system

A10 - Point out the functional anatomy of the kidney , physiology of glomerular filtration , renal tubular function and micturition.

A11 - describe the physiology of pulmonary ventilation, exchange of gases in the lung , and blood gas transport.

A12- Describe the organization and function of the dogestive system

B. Intellectual Analytical and Cognitive Skills: Student is expected to

B1- Evaluate the normal functions of different components of mentioned systems, and the effect of their disturbances.

C. Subject- Specific Skills: Student is expected to

C1- Suggest the basic physiological measurements used to test different system functions.

C2- Interpret the most important physiological laboratory results, and distinguishes between physiological and pathological performance of different body systems.

D. Creativity /Transferable Key Skills/Evaluation: Student is expected to

D1- Work effectively within a team

D2- Participate effectively in group discussion or debates and Report practical procedures in a clear and concise manner.

11.1 Hormones and Endocrine Glands 11.2 Hormones Structures and Synthesis 11.3 Hormone Transport in the Blood 11.4 Hormone Metabolism and Excretion 11.5 Mechanism of Hormone Action 11.6 Inputs that Control Hormone Secretion 11.7 Types of Endocrine Disorders <u>The Hypothalamus and Pituitary Gland</u> 11.8 Control Systems Involving the Hypothalamus and Pituitary <u>The Thyroid Gland</u> 11.9 Synthesis of Thyroid Hormone 11.10 Control of Thyroid Function 11.11 Actions of Thyroid Hormone <u>The Endocrine Response to Stress</u> 11.13 Physiological Functions of Cortisol 11.14 Functions of Cortisol in Stress 11.15 Adrenal Insufficiency and Cushing's Syndrome 11.16 Other Hormones Released During Stress			2			
<u>Cardiovascular Physiology</u> <u>Overview of the Circulatory System</u> 12.1 Components of the Circulatory System 12.2 Pressure, Flow, and Resistance <u>The Heart</u> 12.3 Anatomy 12.4 Heartbeat Coordination 12.5 Mechanical Events of the Cardiac Cycle 12.6 The Cardiac Output 12.7 Measurement of Cardiac Function <u>The Vascular System</u> 12.8 Arteries 12.9 Arterioles <u>Integrative Cardiovascular Function:</u> <u>Regulation of Systemic Arterial Pressure</u> 12.13 Baroreceptor Reflexes	28-29 30-31 32-33	Dr. Hana Hammad	A9, B1,C1,C 2	Discussion and Exams	12	
<u>Respiratory Physiology</u> 13.1 Organization of the Respiratory System 13.2 Ventilation and Lung Mechanics 13.3 Exchange of Gases in Alveoli and Tissues 13.4 Transport of Oxygen in Blood 13.5 Transport of Carbon Dioxide in Blood 13.6 Transport of Hydrogen Ions Between Tissues and Lungs 13.7 Control of Respiration	34-37	Dr. Hana Hammad	A11, B1,C1,C 2	Discussion and Exams	13	
<u>The Kidneys and Regulation of Water and Inorganic Ions</u> <u>Basic Principles of Renal Physiology</u> 14.1 Renal Functions 14.2 Structure of the Kidneys and Urinary System 14.3 Basic Renal Processes 14.4 The Concept of Renal Clearance 14.5 Micturition	38-41	Dr. Hana Hammad	A10, B1,C1,C 2	Discussion and Exams	14	

<p><u>Regulation of Ion and Water Balance</u> 14.6 Total-Body Balance of Sodium and Water 14.7 Basic Renal Processes for Sodium and Water 14.8 Renal Sodium Regulation 14.9 Renal Water Regulation 14.12 Potassium Regulation 14.13 Renal Regulation of Calcium and Phosphate Ion</p>					
<p>The Digestion and Absorption of Food 15.1 Overview of the Digestive System 15.2 Structure of the Gastrointestinal Tract Wall 15.3 General Functions of the Gastrointestinal and Accessory Organs 15.4 Digestion and Absorption 15.5 How Are Gastrointestinal Processes Regulated?</p>	42-45		A12, B1,C1,C2	Discussion and Exams	15

21. Teaching Methods and Assignments:

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

22. Evaluation Methods and Course Requirements:

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

23. Course Policies:

A- Attendance policies:

Students are allowed to not attend seven lectures (15%) in the whole semester. In this case, students must attend every lab weekly. If a student does not attend a lab, then he/she has a maximum numbers of four lectures to skip.

B- Absences from exams and handing in assignments on time:

If a student does not attend an exam, he/she will get zero grade in that exam, unless, he/she shows a medical report that proves he/she could not attend the exam. In this case, a makeup exam will be offered to the student as soon as possible.

C- Health and safety procedures:

Students need to be aware of the basic procedure of laboratory safety. Part of the first lab in the first week of the semester is assigned to teach students these basic laboratory procedures.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

University regulations will be implemented for any cheating attempt, plagiarism and misbehavior.

E- Grading policy:

Evaluation	Grade
First Exam	20
Second Exam	20
Lab Reports and Quizzes	10
Final Lab Exam	10
Final Lecture Exam	40

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

The university provides lab materials and equipment. Moreover, the university provides personnel to help in exams.

24. Required equipment:

1. Data show
2. Lab instruments

25. References:

Widmaier, E.P., Raff, H. and Strang, K. T. Vander's Human Physiology
The Mechanisms of Body Function, 13th Ed. New York, McGraw-Hill, 2014.

Laboratory Manual

26. Additional information:

Name of Course Coordinator: الدكتور هنا حماد Signature: ----- Date: 12/ 01/ 2016

Head of curriculum committee/Department: الاستاذة الدكتورة سوسن العوران Signature: -----

Head of Department: الدكتورة هنا العبوس Signature: -----

Head of curriculum committee/Faculty: الاستاذة الدكتورة أمل العابودي Signature: -----

Dean: الاستاذ الدكتور صالح محمود Signature: -----

Copy to:

Head of Department
Assistant Dean for Quality Assurance
Course File