

 Knowledge UNIVERSITY	Kurdistan Region – Iraq Ministry of Higher Education and Scientific Research Knowledge University	
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MODULE DESCRIPTOR FORM

Module Information			
Course Module Title	PHYSIOLOGY		
ناونیشانی مۆدیول	فیزیولوژی		
عنوان الوحدة	فسلجه الانسان		
Course Module Type	Core	Module Code	PPT632
ECTS Credits	5	Module Level	2 ND YEAR
Semester of Delivery	1 st and 2 nd	Dept. Code	PP
College (Code)	PP		
Module Website (CMW)	Knu.edu.iq/sms		
Module Leader (ML)	Mustafa AbdulMonam Zainel	e-mail	mustafa.zainel@knu.edu.iq
ML Acad. Title	Ass. Lec.	Qualification	MSc.
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Peer Review Name		e-mail	
Reviewer Committee Approval		Version Number	

Relation With Other Modules

Pre-requisites	
Co-requisites	
Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. To provide students with a comprehensive understanding of the fundamental principles and concepts of human physiology. 2. To enable students to appreciate the interrelationships and interactions between different physiological systems within the human body. 3. To equip students with the knowledge and skills necessary for analyzing physiological processes and their regulation. 4. To foster critical thinking and problem-solving abilities in the context of human physiology.
Module Learning Outcomes	Student learning outcome: By the end of the course, the students should be able: ▪ Understand the structure and function of major physiological systems in the human body, including the nervous, muscular, cardiovascular, respiratory, digestive, renal, endocrine, and reproductive systems. ▪ Explain the mechanisms underlying physiological processes, including cellular transport, metabolism, neural signaling, muscle contraction, and hormonal regulation. ▪ Analyze the integration and coordination of physiological responses to maintain homeostasis in various environmental conditions and physiological states. ▪ Apply physiological principles to interpret and explain the mechanisms underlying health and disease states. ▪ Demonstrate proficiency in experimental techniques commonly used in studying human physiology, including data collection, analysis, and interpretation. ▪ Communicate scientific findings and concepts related to human physiology effectively through oral presentations and written reports.

	▪ Demonstrate ethical and professional conduct in the study and application of human physiology principles.
Indicative Contents	1. Introduction to Human Physiology: • Basic principles and concepts • Levels of organization in the body • Homeostasis and feedback mechanisms 2. Cellular Physiology: • Cell structure and function • Membrane transport • Cellular metabolism and energy production 3. Nervous System: • Structure and function of neurons • Neurotransmission • Central and peripheral nervous systems • Sensory and motor pathways 4. Muscular System: • Muscle types and structure • Mechanisms of muscle contraction • Neuromuscular junction 5. Cardiovascular System: • Heart structure and function • Cardiac cycle • Blood vessels and circulation • Regulation of blood pressure and flow 6. Respiratory System: • Anatomy and physiology of the respiratory tract • Pulmonary ventilation • Gas exchange and transport • Regulation of respiration 7. Digestive System: • Structure and function of digestive organs • Digestion and absorption of nutrients • Regulation of digestive processes 8. Renal System: • Structure and function of the kidneys • Urine formation and composition • Regulation of water and electrolyte balance 9. Endocrine System: • Hormonal regulation • Endocrine glands and their functions • Feedback mechanisms in hormone regulation 10. Reproductive System: • Male and female reproductive anatomy • Reproductive hormones and their functions • Gametogenesis and reproductive cycles 11. Integration and Regulation of Physiological Systems:

	● Homeostatic control mechanisms ● Integration of physiological processes ● Responses to stress and environmental challenges 12. Applied Physiology: ● Physiology of exercise and sports performance ● Physiology of aging ● Physiological basis of common diseases and disorders
Learning and Teaching Strategies	
Strategies	1. Lectures: Provide foundational knowledge and concepts through structured lectures delivered by subject matter experts. Use multimedia resources such as slides, videos, and animations to enhance understanding and engagement. Encourage interaction and discussion during lectures to clarify concepts and address student questions. 2. Laboratory Sessions: Conduct hands-on laboratory experiments to reinforce theoretical concepts and principles learned in lectures. Provide opportunities for students to collect and analyze physiological data using experimental techniques and instrumentation. Foster teamwork and collaboration among students during laboratory sessions to promote peer learning and problem-solving skills. 3. Interactive Workshops: Organize interactive workshops focused on specific topics or case studies to encourage active participation and critical thinking. Facilitate group discussions, debates, or role-playing activities to explore different perspectives and real-world applications of physiological concepts. Incorporate problem-based learning (PBL) or case-based learning (CBL) approaches to promote problem-solving skills and integration of knowledge. 4. Tutorials and Seminars: Conduct small-group tutorials or seminars to provide personalized support and guidance to students. Review challenging topics, address student queries, and reinforce key concepts through guided discussions and activities. Encourage students to present their research findings, projects, or case studies during seminars to develop presentation and communication skills. 5. Online Resources: Utilize online learning platforms, virtual simulations, and educational resources to supplement traditional teaching methods.

	Provide access to multimedia resources, interactive quizzes, and self-assessment tools to facilitate independent learning and revision. Foster online discussions and collaborative activities through discussion forums, chat rooms, or virtual study groups. 6. Practical Applications: Integrate real-world examples, clinical case studies, and practical applications of physiological principles to enhance relevance and engagement. Invite guest speakers, such as healthcare professionals or researchers, to share their expertise and experiences related to human physiology. Encourage students to explore career opportunities and research areas within the field of physiology through guest lectures or industry visits. 7. Assessment: Implement a variety of assessment methods, including quizzes, exams, essays, laboratory reports, presentations, and group projects. Design assessments that assess students' understanding of core concepts, critical thinking abilities, and practical skills. Provide constructive feedback to students to support their learning and academic development.
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Module Delivery	
Structured workload (h/w)	2h/w
Unstructured workload (h/w)	8.8h/w
Total workload (h/w)	10.8h/w

Module Evaluation				
	Number/Time	Weight (Marks)	Week Due	Relevant Learning Outcome
Quiz	3 hr	5%	15	
Attendance	3 hr	5%	15	
Report	2.8 hr	5%	15	
Project/Lab.	2 hr	5%	15	
Midterm Exam	1hr	30%	15	
Final Exam	2 hr	50%	15	
Total	100% (100 Marks)			

Learning and Teaching Resources		
	Text	Available in the Library?

Required Texts	Guyton and Hall Textbook of Medical Physiology, 14th edition. Authored by Dr. John E. Hall. ELSEVIER Inc. Philadelphia, PA.	
Recommended Texts	Textbooks: "Human Physiology" by Lauralee Sherwood "Principles of Human Physiology" by Cindy L. Stanfield "Human Physiology: An Integrated Approach" by Dee Unglaub Silverthorn Online Courses: Coursera: Various courses on human physiology offered by universities and institutions around the world. edX: Courses on physiology-related topics, including anatomy, exercise physiology, and nutrition. Khan Academy: Free online lessons covering basic concepts in human physiology. OpenStax: Open educational resources providing free textbooks and course materials on human physiology. Interactive Websites and Simulations: PhysioEx: Virtual laboratory simulations for exploring physiological concepts and experiments. Anatomy & Physiology Revealed: Interactive cadaver dissection and multimedia learning tool. The Physiology Learning and Teaching Resource: Online resource with interactive tutorials, quizzes, and case studies. Visible Body: 3D anatomy and physiology visualizations for interactive learning. Podcasts and YouTube Channels: "The Naked Scientists Podcast": Episodes covering various topics in physiology and biomedical science. "Armando Hasudungan": YouTube channel with animated tutorials on human physiology and medical topics.	

	"AK Lectures": YouTube channel featuring lectures on physiology, biology, and other science topics. Journals and Research Articles: "Journal of Physiology" "American Journal of Physiology" "Advances in Physiology Education" PubMed: Database of biomedical literature with access to research articles on human physiology. Online Communities and Forums: Reddit: Subreddits such as r/Physiology and r/Anatomy where students and educators discuss topics related to human physiology. Student Doctor Network: Online forum for students pursuing careers in healthcare professions, including physiology-related discussions.	
Websites		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Human Physiology: Basic principles and concepts, Levels of organization in the body, Homeostasis and feedback mechanisms.
Week 2	Cellular Physiology: Cell structure and function, Membrane transport, Cellular metabolism and energy production, Cellular Receptors.
Week 3	Nervous System: Structure and function of neurons, Neurotransmission, Central and peripheral nervous systems, Sensory and motor pathways
Week 4	Muscular System: Muscle types and structure, Mechanisms of muscle contraction, Neuromuscular junction

Week 5	Cardiovascular System: Heart structure and function, Cardiac cycle, Blood vessels and circulation, Regulation of blood pressure and flow
Week 6	Respiratory System: Anatomy and physiology of the respiratory tract, Pulmonary ventilation, Gas exchange and transport, Regulation of respiration
Week 7	Mid-Term Exam
Week 8	Digestive System: Structure and function of digestive organs, Digestion and absorption of nutrients, Regulation of digestive processes
Week 9	Renal System: Structure and function of the kidneys, Urine formation and composition, Regulation of water and electrolyte balance
Week 10	Endocrine System: Hormonal regulation, Endocrine glands and their functions, Feedback mechanisms in hormone regulation
Week 11	Reproductive System: Male and female reproductive anatomy, Reproductive hormones and their functions, Gametogenesis and reproductive cycles
Week 12	Integration and Regulation of Physiological Systems: Homeostatic control mechanisms, Integration of physiological processes, Responses to stress and environmental challenges
Week 13	Applied Physiology: Physiology of exercise and sports performance, Physiology of aging, Physiological basis of common diseases and disorders
Week 14	Final Examination

APPENDIX:

KNOWLEDGE UNIVERSITY					
GRADING SCHEME					
Group	ECTS Grade	% of Marks	Definition	IRQ System	GPA
Success Group (50-100)	A - Excellent	Best 10%	Outstanding Performance	90-100	5
	B - Very Good	Next 25%	Above average with some errors	80-89	4
	C - Good	Next 30%	Sound work with notable errors	70- 79	3
	D - Satisfactory	Next 25%	Fair but with major shortcomings	60-69	2
	E - Sufficient	Next 10%	Work meets minimum criteria	50-59	1
Fail Group (0-49)	FX – Fail	(45-49)	More work required but credit awarded	40-49	
	F – Fail	(0-44)	Considerable amount of work required	0-44	
NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. KNU has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.					