جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة المستقبل
كلية العلوم
قسم التقنيات الاحيائية الطبية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Animal Physiology**			**Module Delivery**	
Module Type	Core learning activity			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOMU037041**				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Dr. Mohammed Zuhair Naji		e-mail	Mohammed.zuhair.naji@uomus.edu.iq	
Module Leader's Acad. Title			**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	14/11/2025		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	MBT-1205	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	**1.** Learn the basics and concepts of physiology. **2.** The student discusses the branches of physiology. **3.** To understand the physiology of body system. **4.** To address the levels of cellular organization. **5.** To provide students with a basic understanding of the fundamental processes and mechanisms that serves and controls the various functions of the body. **6.** To recognize the concept of homeostatic and the role of it's functional in some system.

	7. To distinguish the functions of different body systems. 8. To learn to properly and safely use animals sample, human sample, and modern laboratory equipment to conduct research.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Describe the basic principles underlying physiology and describe basic structure function relationships. 2. Understand structure function relationships, homeostasis and feedback regulation. 3. Describe the physiological and its function to fuelling and maintaining homeostasis in tissues. 4. Demonstrate the relationship behind influential environmental factors and the function of animals or humans in their environment. 5. Student explains the concepts of homeostasis. 6. Work effectively, normally as part of a team, to produce an oral presentation. 7. The student uses the appropriate practical methods to test the systems of the human or animal body. 8. Student analyzes and interprets the results of conducted experiments and formulates conclusions.
Indicative Contents المحتويات الإرشادية	1. Definition of physiology, physiologists, specialties, organization levels. 2. Homeostasis, parts, feedback, its pathways change. 3. Blood, composition, blood groups, hematopoiesis. 4. Hemostasis of blood: vascular constriction, formation of a platelet plug, blood coagulation. 5. Circulatory system, functions, circulations (pulmonary and systemic). 6. Cardiac output, control (heart rate and stroke volume), effect of exercise on cardiac output. 7. Respiration, pulmonary ventilation, external and internal respiration, respiratory and conducting zone, bulk flow, non-respiratory functions of the lungs. 8. The digestive system, function (digestion, secretion, absorption, and motility), Functions of the GI organs. 9. The muscular system, properties of muscular tissues (electrical excitability, contractility, extensibility and elasticity), classified, major features of the three types of muscular tissue, contraction. 10. The nervous system, central nervous system, classification, structure of neuron, properties of nerve fibers (excitability, conductivity, refractory period, summation, adaptation, infatigability, All-or-None law), supporting cells, A synapse (neuron synapses, electrical synapses, chemical synapses). 11. The urinary systems, nephrology, urology, urologist, functions of the kidneys, basic renal processes, renal corpuscles and the glomerular filter, glomerular filtration rate, micturition, renin−angiotensin−aldosterone mechanism. 12. The endocrine system, endocrine glands, hormone activity, mechanisms of hormone action, homeostatic control of hormone secretion, hypothalamus and pituitary gland, thyroid gland, parathyroid glands, pancreatic islets, The stress response, development and aging of the endocrine system. 13. Sexual reproduction, gametes, fertilization, gynecology, spermatogenesis, sex hormones, oogenesis, ovarian cycle, aging and the reproductive systems, the reproductive systems and homeostasis. 14. The sense of hearing, eye: vision, The chemical senses-taste and smell.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	To encourage students to participate in exercises, answer questions, theoretical and practical reports, seminars, conduct collective and individual skill tests, and

	theoretical, laboratory and field brainstorming. At the same time refine and expand critical thinking skills. This will be achieved through quizzes, interactive tutorials, and by thinking about the type of simple experiments that include some sampling activities that are of interest to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10%(10)	5,10	1,2,3,4,5
	Assignments	2	10%(10)	7,14	6
	Projects / Lab.	1	10%(10)	Continuous	
	Report	1	10%(10)	13	7,8
Summative assessment	**Midterm Exam**	2h	10%(10)	7	1,2,3,4,5
	Final Exam	2h	50%(50)	16	all
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Physiology, animal physiologists, specialties in physiology, the levels of organization.
Week 2	Homeostasis, parts or mechanisms of homeostasis, feedback, pathways that alter homeostasis.
Week 3	Blood, composition of the blood (cellular portion and fluid portion), blood groups, hematopoiesis.
Week 4	Blood and hemostasis (vascular constriction, formation of a platelet plug, blood coagulation).
Week 5	Circulatory system, functions, major components, pulmonary and systemic circulations.
Week 6	Cardiac output, introduction, control of heart rate and stroke volume, effect of exercise on output.
Week 7	Mid-term Exam +Respiratory system, ventilation, steps of respiration, mechanics of breathing, nonrespiratory functions.
Week 8	The digestive system, functions, functions of the gastrointestinal organs.
Week 9	The muscular system, properties, classified, skeletal muscles, contraction and relaxation of skeletal.
Week 10	The nervous system, central of N.S., classification, properties of nerve fibers, the synapse.
Week 11	The urinary system, functions, basic renal processes, filtration rate, urination, angiotensin.

Week 12	The endocrine system, hormone activity and mechanisms, homeostatic control, gland, development.
Week 13	Male reproductive system, spermatogenesis, sex hormones, abnormalities of male sexual function.
Week 14	Female reproductive system, oogenesis, reproductive cycle, female hormonal, aging and systems.
Week 15	Ear, eye, olfaction and taste, smell or olfaction.
Week 16	Preparatory week before the final Exam.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Some terms and technical in physiology laboratory, Blood collection.
Week 2	Homological test (prepare blood smear, blood group, and PCV).
Week 3	Bleeding time and clotting time.
Week 4	Leukocytes count (WBC) and Erythrocytes count (RBC).
Week 5	Inflammatory marker (CRP, ESR, and PCT).
Week 6	Cardiovascular system (CK and Troponin).
Week 7	Lipid profile (cholesterol, triglycerides), HDL, LDL, and VLDL.
Week 8	Liver lab test: Serum bilirubin, AST, ALT and ALP.
Week 9	Renal system and urine analysis (creatinine and blood urea nitrogen)
Week 10	Endocrine system (thyroid gland, diabetes, and vitamin d disorder).
Week 11	GIT lab test.
Week 12	Reproductive system male and female.
Week 13	Amphibian experiments.
Week 14	Mammalian experiments.
Week 15	Human experiments.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	• Guyton and Hall. (2011). Textbook of Medical Physiology, 13th EDITION, Hall, John E. (John Edward). • Gerard J. Tortora. (2014). Principles of ANATOMY and PHYSIOLOGY., Bergen Community College, Bryan Derrickson, Valencia College, 14th Edition. • Edition K Sembulingam, and Prema Sembulingam. (2012). Essentials of Medical Physiology, Sixth Edition. • CL Ghai, (2013). A Textbook of Practical Physiology, Eighth Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi • Panama City • London• • M Chandrasekar and Nitesh Mishra. (2014). Practical Physiology Book. Second Edition, Jaypee Brothers	no

	Medical Publishers (P) Ltd, New Delhi -Panama City - London.	
Recommended Texts	• Vander's Human Physiology: The Mechanisms of body Function, Thirteenth Edition, 2014. • Kim E. Barrett, Scott Boitano, et.al.(2012).Ganong's Review of Medical Physiology. New York Chicago San Francisco Lisbon London Madrid Mexico City. • OpenStax College. (2013). Anatomy and Physiology, human physiology. Wikibooks.	no
Websites	Not found	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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. The University 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.