	Ministry of Higher Education and Scientific Research - Iraq Al-Mustaqbal University College of Engineering Department of Prosthetics and Orthotics Engineering	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	الاحياء			**Module Delivery**	
Module Type	CORE			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	UOMU0103026				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	1		**Semester of Delivery**	2	
Administering Department	UOMU0103		**College**	UOMU01	
Module Leader	Ahmed Hamed Al-Himyari		**e-mail**	ahmed.hamed@uomus.edu.iq	
Module Leader's Acad. Title	Lect.		**Module Leader's Qualification**	PhD	
Module Tutor					
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**	1.0	

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	1. Understanding Life Processes: The primary aim of studying biology is to gain a comprehensive understanding of the fundamental processes that govern life, including cellular functions, genetic inheritance, and physiological mechanisms. 2. Advancing Medical and Health Sciences: Biology plays a crucial role in advancing medical knowledge and healthcare. It aims to provide insights into human physiology, diseases, and the development of medical interventions for improved health outcomes. 3. Promoting Scientific Inquiry and Critical Thinking: Encourage students to develop a scientific mindset		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**Introduction to Biology** • Understand fundamental principles and concepts of biology, including the scientific method, cellular organization, and levels of biological organization. **Cellular Biology** • Demonstrate knowledge of cellular structure and functions, including organelles, cellular processes, and cell division. **Genetics and Heredity** • Comprehend the principles of genetics, including Mendelian inheritance, genetic variation, and basic DNA structure and replication. **Histology and Histopathology** • Analyze tissues at the microscopic level, distinguishing between normal tissue structures (histology) and changes associated with diseases (histopathology). **Human Development and Growth** • Describe the stages of human development from conception to birth, as well as postnatal growth and developmental milestones. • **Introduction to Human Physiology (Physiology of Skeletal System)** Explain the structure and function of the skeletal system, including bones, joints, and its role in support and movement. • **Physiology of Muscular Systems** Demonstrate understanding of the muscular system, including muscle types, functions, and the physiology of muscle contraction.		

	• **Physiology of Cardiovascular System** Understand the cardiovascular system, including the heart, blood vessels, and blood circulation. • **Physiology of Nervous System** Describe the nervous system, including the central and peripheral nervous systems, neurons, and basic neurophysiology. • **Physiology of Respiratory System** Explain the respiratory system, covering the structure and function of the lungs, gas exchange, and respiratory physiology. • **Physiology of Integumentary System** Understand the integumentary system, including the skin and its appendages, and its role in protection and regulation. **Biology of Diseases** • Analyze basic concepts related to health and disease, including etiology, pathology, and factors influencing health. **Medical Terminology** • Demonstrate proficiency in using medical terminology, including prefixes, suffixes, and root words. **Basic Biomechanics** • Apply knowledge of biomechanics to understand the mechanical aspects of the human body, including forces, motion, and their applications in prosthetics and orthotics. **Ethics and Professionalism** Evaluate ethical principles and considerations in the practice of prosthetics and orthotics, including patient autonomy, informed consent, and professional conduct.
Indicative Contents المحتويات الإرشادية	Indicative Contents of Biology during 15 weeks (4 hours per week) Week 1: Introduction to Biology Lecture 1: Overview of Biological Concepts and Principles Introduction to the fundamental principles and concepts of biology, including the scientific method, cellular organization, and levels of biological. Week 2: Cellular Biology Lecture 2: Cellular Structure and Function Exploration of the structure and functions of cells, including organelles, cellular processes like metabolism, and the basics of cell division.

	Week 3: Genetics and Heredity Lecture 3: Basics of Genetics and Heredity Introduction to the principles of genetics, including Mendelian inheritance, genetic variation, and the basics of DNA structure and replication. Week 4: Histology and Histopathology Lecture 4: Introduction to Histology and Histopathology Study of tissues at the microscopic level, understanding normal tissue structures (histology) and the changes associated with diseases (histopathology). Week 5: Human Development and Growth Lecture 5: Prenatal and Postnatal Development Examination of the stages of human development from conception to birth, as well as postnatal growth and developmental milestones. Week 6: Human Physiology Lecture 6: Introduction to Human Physiology (Physiology of Skeletal System) Focus on the structure and function of the skeletal system, including bones, joints, and the role of the skeletal system in support and movement. Week 7: Muscular System Lecture 7: Physiology of Muscular System Study of the muscular system, covering muscle types, functions, and the physiology of muscle contraction. Week 8: Cardiovascular System Lecture 8: Physiology of Cardiovascular System Examination of the cardiovascular system, including the heart, blood vessels, and blood circulation. Week 9: Nervous System Lecture 9: Physiology of Nervous System Overview of the nervous system, including the central and peripheral nervous systems, neurons, and basic neurophysiology.

	Week 10: Respiratory System Lecture 10: Physiology of Respiratory System Study of the respiratory system, covering the structure and function of the lungs, gas exchange, and respiratory physiology. Week 11: Integumentary System Lecture 11: Physiology of Integumentary System Focus on the skin and its appendages, understanding the structure and functions of the integumentary system. Week 12: Biology of Diseases Lecture 12: Concepts of Health and Disease Exploration of basic concepts related to health and disease, including etiology, pathology, and factors influencing health. Week 13: Medical Terminology Lecture 13: Basics of Medical Terminology Introduction to the language used in the medical field, including prefixes, suffixes, and root words. Week 14: Basic Biomechanics Lecture 14: Fundamentals of Biomechanics Study of the mechanical aspects of the human body, including forces, motion, and their applications in prosthetics and orthotics. Week 15: Ethics and Professionalism Lecture 15: Ethical Considerations in Prosthetics and Orthotics Practice Exploration of ethical principles and considerations in the practice of prosthetics and orthotics, including patient autonomy, informed consent, and professional conduct.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	.1Lectures: Delivering traditional lectures can provide a structured overview of key biological concepts, processes, and phenomena. Use visual aids, such as slides or diagrams, to enhance understanding and illustrate important points. .2Active Learning:

	A. Encourage participation through discussions, group activities, and problem-solving exercises. B. Use case studies or real-world examples to apply biological concepts. .3Group Discussions: Facilitate group discussions where students can share their perspectives, ask questions, and engage in critical thinking about biological concepts. Encourage active participation, exchange of ideas, and collaborative problem-solving to deepen their understanding. .4Visual and Multimedia Resources: Utilize visual and multimedia resources, such as interactive presentations, videos, animations, and virtual simulations, to enhance learning and make complex biological concepts more accessible and memorable.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	3, 6	LO #1, 2, 3 .4 and 5
	Assignments	2	10% (10)	5, 9	LO # 3, 4, 6 and 7
	Projects / Lab.	2	10% (10)	9,12	LO # 9, 10, 11 and 12
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Overview of Biological Concepts and Principles**
Week 2	**Cellular Structure and Function**
Week 3	**Basics of Genetics and Heredity**
Week 4	**Introduction to Histology and Histopathology**
Week 5	**Prenatal and Postnatal Development**
Week 6	**Introduction to Human Physiology (Physiology of Skeletal System)**
Week 7	**Physiology of Muscular Systems**
Week 8	**Physiology of Cardiovascular System**
Week 9	**Physiology of Nervous System**
Week 10	**Physiology of Respiratory System**
Week 11	**Physiology of integumentary System**
Week 12	**Concepts of Health and Disease**
Week 13	**Basics of Medical Terminology**
Week 14	**Fundamentals of Biomechanics**
Week 15	**Ethical Considerations in Prosthetics and Orthotics Practice**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Amerman, Erin C. - Human anatomy & physiology-Pearson (2016) Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Jane B. Reece - Campbell Biology-Pearson (2016)	No
Recommended Texts	(WCB General Biology) Sylvia Mader, Michael Windelspecht - Human Biology-McGraw-Hill Education (2017)	No
Websites	https://www.coursera.org/learn/physiology https://www.coursera.org/specializations/introduction-to-biology https://www.coursera.org/specializations/biology-everywhere	

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

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.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي