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

نموذج وصف المادة الدراسية
MODULE DESCRIPTION FORM

Module Information معلومات المادة الدراسية					
Module Title	General Biology- Zoology			**Module Delivery**	
Module Type	Core learning activity			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOMU0307022**				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	1		**Semester of Delivery**	2	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	**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	13/6/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	At the end of the semester, the students are expected to have: **1.** Understand the interrelationship of all life forms through the knowledge of common life processes; **2.** Recognize the diversity of animal life and the role played by each animal in its environment;

	3. Appreciate the Maker for placing every living thing in its proper order and for the balance of nature. **4.** Describe the characteristics of each phylum under Kingdom Animalia. **5.** Develop an understanding of the animal kingdom and a facility with the techniques used in the biological investigation of animals at a depth appropriate for the college level. **6.** Describe the role of taxonomy and systematics in animal studies. **7.** Describe the major environmental characteristics and limiting factors associated with the earth's major ecosystems. **8.** Describe the origin and early evolution of the animal kingdom. **9.** Describe the distinguishing characteristics of the major animal phyla. **10.** Develop a facility with microscopes and dissecting microscopes, their specific uses, and the advantages and disadvantages of each. **11.** Develop the ability to perform directed dissections of animal's representative of major phyla or classes. **12.** Be able to collect, properly preserve, identify and display representative animal species (optional) and appreciate the biological value of such activities.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**1.** Have developed an understanding of the diversity of animal life and an appreciation of the significance of various taxa. **2.** Have developed a basic understanding of the evolutionary history of the animal kingdom. **3.** Develop an understanding of the form and function of some animal systems. **4.** Develop laboratory skills necessary for zoological study. **5.** Work effectively, normally as part of a team, to produce an oral presentation.
Indicative Contents المحتويات الإرشادية	1. The animal kingdom, animal records: A. Largest animal, smallest animal, longest lived animal. Cold blooded vertebrates, warm blooded vertebrates. 2. What exactly is an animal?: multicellular organisms, motile, most animals have true tissues, organs and organ systems, heterotrophs, aerobic respiration, fats or oils, a head, outgrowths, sexually and asexually, complex development, behavior is an important tool for animal survival, venoms, adapt, natural selection. 3. Animal cells: eukaryotic, animal (including human) organ systems: skin, skeletal system, the respiratory system, circulatory system, the senses, the endocrine system. 4. Taxonomy and classification: taxonomy, what characteristics are used, common vs scientific name, history of classification, biological species concept: systematics, phylogeny, primitive vs advanced, generalized vs specialized, homologous vs analogous. 5. Introduction to ecology: biosphere, ecosystems: marine ecosystems and freshwater ecosystems, general kinds of ecosystems: aquatic ecosystems and terrestrial ecosystems, community interactions. symbiosis: mutualism, commensalism and parasitism. 6. Introduction to evolution, evolution, nature selects. adaptation vs evolution, the theory of evolution by: much older. Additional evidence supporting evolutionary. 7. Origin and evolution of animals, multicellular life, advantages and disadvantages of multicellular life, the cambrian explosion: What caused the Cambrian 'Explosion'?. History of animal life: fossils. classification of animals. 8. Protists – General, the animal-like Protists: Protozoa, reproduction and life Cycles: Life cycles, reproduction: asexual: sexual, some major kinds of Protozoa: Amoebas, Flagellates, and Ciliates. Human Impacts. 9. Animal reproduction: Asexual reproduction and sexual reproduction, examples of asexual reproduction: Budding, fragmentation, polyembryony and

	regeneration. Sexual reproduction: Hermaphrodites, Dioecious animals, Protandry, sexual dimorphism and parthenogenesis. 10. Phylum Placozoa: *Trichoplax adhaerens*, Phylum Porifera (Sponges): Body plan, support, feeding and digestion, no respiratory or excretory systems, no Nervous System or Sense Organs, Reproduction and Development, Phylogeny of sponges, ecological interactions, and human impacts of sponges. 11. Arthropods – General, distinctive characteristics of Arthropods, Arthropod body plan, body wall, Molting, feeding and digestion, respiration, circulation, nervous system, excretion, reproduction and development. Origin and evolution of Arthropods. 12. Arthropods–Chelicerates: Distinctive characteristics of chelicerates: Transition to land, body plan, feeding and digestion, Respiratory system, senses, circulation, excretion, reproduction. Classification of Chelicerates: Class Merostomata and class Arachnida. 13. Subphylum: Hexapoda: (insects). Distinctive characteristics of Hexapod: Body form: head, thorax and abdomen. Insect movement, feeding and nutrition, respiration, sense organs, communication and behavior. 14. Crustaceans, distinguishing characteristics of Crustacea, body form, movement, respiration, circulation, nervous system, sense organs, endocrine system, excretion, reproduction. Classification of Crustacea, economic importance of Crustaceans. 15. Phylum Chordata, major identifying characteristics, Vertebrata: Amphibia, Birds, Mammals, Fish, Reptilia.

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 اسبوعا			
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	86	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	The animal kingdom, animal Records.
Week 2	What exactly is an Animal?
Week 3	Animal cells, animal (including human) organ systems.
Week 4	Taxonomy and classification: Common vs Scientific Name, history of classification, biological species concept.
Week 5	Introduction to ecology, ecosystems, community interactions.
Week 6	Introduction to evolution, adaptation vs evolution. The theory of evolution by natural selection, supporting evolutionary theory.
Week 7	**Mid-term Exam** + Origin and evolution of animals, advantages and disadvantages of multicellular life. The cambrian explosion, history of animal life.
Week 8	The Animal-like Protists: General, Protozoa, reproduction and life cycles.
Week 9	Animal reproduction. Examples of asexual and sexual reproduction.
Week 10	Phylum Placozoa. Phylum Porifera (sponges).
Week 11	Arthropods – General. Distinctive characteristics of arthropods. Origin and evolution of arthropods.
Week 12	Arthropods – Chelicerates: Distinctive characteristics of chelicerates. Classification of Chelicerates.
Week 13	Subphylum: Hexapoda: (insects). Distinctive characteristics of Hexapoda.
Week 14	Crustaceans. Distinguishing characteristics of Crustacea. Classification, economic importance of Crustaceans.
Week 15	Phylum Chordata. Major identifying characteristics. Vertebrata.
Week 16	Preparatory week before the final Exam.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Orientation. Lab safety. Animal Collection, lab skills and Microscopy.
Week 2	Study of whole mount/ culture of Amoeba and Paramecium to observe.
Week 3	Some Animal-Like Protists..

Week 4	Phylum Porifera (Sponges)
Week 5	Phylum Coelentrata.
Week 6	Phylum Mollusca.
Week 7	Phylum Echinodermata.
Week 8	Phylum Arthropoda.
Week 9	Phylum of Arthropod , Chelicerata (arachnids ,Tick and Mites), Crustacea and Myriapoda
Week 10	Phylum Arthropoda, (Hexapoda).
Week11	Order: Diptera (fly and mosquitoes).
Week 12	Order: Hemiptera (bugs).
Week 13	Phylum Chordata: Aves
Week 14	Phylum Chordata: Mammalia.
Week 15	Phylum Chordata (VI): Amphibia.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	• Stephen W. Ziser. (2015). General Zoology: Lab Supplement. • S. S. LAL. (2010). Practical zoology: vertebrate. INDIA. • Integrated Principles of Biology 16th Ed. By Hickman et al. 2014. McGraw Hill Higher Education. Boston. • Essentials of The Living World, 4th Edition, By George Johnso, (2013). • Biology-Concepts and Connections. N. Campbell, J. Reece, L. Mitchell, and M. Taylor, 4th Edition. Benjamin Cummings, Menlo Park.	
Recommended Texts	• Van de Graaff, K.M., and J. L. Crawley. A photographic atlas for the zoology laboratory. Morton Publishing Company, Englewood, CO.	
Websites		

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.