



Ministry of Higher Education and  
Scientific Research - Iraq  
University of Al Muthanna  
College of Applied of Medical Sciences  
Department of Environmental Health



## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	General Biology		Module Delivery	
Module Type	BASIC		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	ENH1101			
ECTS Credits	9			
SWL (hr/sem)	225			
Module Level	1	Semester of Delivery		1
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Sarah Zghair Hussein		e-mail	<a href="mailto:sarah.zghair@mu.edu.iq">sarah.zghair@mu.edu.iq</a>
Module Leader's Acad. Title	Assist. Lecturer		Module Leader's Qualification	
Module Tutor	Dr. Sarah Zghair Hussein		e-mail	<a href="mailto:sarah.zghair@mu.edu.iq">sarah.zghair@mu.edu.iq</a>
Peer Reviewer Name		e-mail	E-mail	
Scientific Committee Approval Date		Version Number		

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

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. This course describes the nature of biology science and the knowledge of the chemical basis of living organisms and how chemistry defines a large part of the biology study.</li> <li>2. The students will Be known about the nature of organic bio-compounds (carbohydrates, proteins etc...) and their importance as building blocks of living systems.</li> <li>3. To understand the characteristics of living organisms and the structure of cells (prokaryotic and eukaryotic).</li> <li>4. Describe the composition and function of biological membranes, define passive transport- diffusion, osmosis, and facilitated diffusion and relate the changing conditions inside and outside of cells to these definitions. describe active transport and relate the changing conditions inside and outside of cells to the need for AT.</li> <li>5. Description of cellular reproduction and the different types carried out by selected organisms and the nature of informational molecules (DNA and RNA) and the expression of this information through the process of gene expression.</li> <li>6. Description of the different types of microorganisms (bacteria, fungi, Protista, and viruses) and their relationship with environmental</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Understand the role of biology and the relevance of different biological processes to our daily life</li> <li>2. Learn how to work in a safe and efficient environment inside the laboratory.</li> <li>3. Use the microscope and learn the basic skills of light microscopy.</li> <li>4. Describe the structure of the cell and learn the function of its different components</li> <li>5. Compare a prokaryotic and a eukaryotic cell and highlight their differences.</li> <li>6. Learn the basic concepts in mechanism to moving of materials across the cell membrane.</li> <li>7. Study the processes of cell division and sexual reproduction.</li> <li>8. Learn the principles of genetics and solve genetic problems.</li> <li>9. Study the molecular characteristics of nucleic acids (DNA and RNA) and how nucleic acids and protein synthesis are interrelated.</li> <li>10. Acquire an overview of the theory of evolution, the origin and the biodiversity of life.</li> <li>11. Acquire an overview of the classification of microorganisms and their major characteristics.</li> <li>12. Test hypotheses, run simple experiments and interpret the data inside the laboratory.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A – Introduction to biology</u> Biology: definition of biology science, branched of biology, characterized of living things, the kingdom of living things, characterized of each kingdom, The Chemical Building Blocks of Life, Carbon Provides the Framework of Biological Molecules, Carbohydrates Form both Structural and Energy-Storing Molecules, Proteins are the Tools of the Cell, Hydrophobic Lipids Form Fats and Membranes [4 hrs]</p> <p><u>Part B- Structure of Cell</u> Cell: definition of cell, types of cells, different between types of cells, shape of cell, define of prokaryotic cell, characteristic of prokaryotic cell, structure of prokaryotic of cell, example of prokaryotic of cell (6 hrs)</p>

	<p>Eukaryotic cell: define of eukaryotic cell, characteristic of eukaryotic cell, structure of this cell, example of this cell, different between the animal and plant cell, structure of membranes in plant and animal cells, cell wall structure in plant cell, plasma membrane structure, function of plasm membrane, properties of plasm membrane, movement of material across the plasma membrane, passive transport (simple diffusion, facilitated diffusion, osmosis) , active transport , vesicle transport (endocytosis and exocytosis). (8hrs)</p> <p>Organelles of cell: nucleus, endoplasmic reticulum, ribosome, golgi apparatus, mitochondria lysosome, cytoskeleton. (4 hrs)</p> <p>Cell cycle: introduction to cell cycle, types of cell cycle, mitosis, stage of mitosis, meiosis, stage of meiosis. (4hrs)</p> <p>Nucleic acid: The nitrogenous bases are classified into two types, Deoxyribonucleic acid (DNA) structure, RNA (Ribonucleic acid) structure, the different between RNA and DNA, Genes structure, Replication process. Protein synthesis, Transcription process, Translation process (6 hrs).</p> <p><u>Part C - Microorganisms</u></p> <p>Bacteria: Define, General properties of bacterial, the classification of bacteria, based on cell wall contents, based on presence of flagella, based on requirement of oxygen, based on method of obtaining nutrition, Reproduction of Bacteria, Vegetative Reproduction of Bacteria, Binary Fission, Asexual reproduction of Bacteria (4hrs)</p> <p>Fungi: introduction to fungi, classification of fungi, reproduction of fungi (4 hrs)</p> <p>Protista: define of parasite, Classification of the of parasitology, Different Kinds of Parasites, Different kinds of Hosts, Life cycle of parasites, Direct life cycle, indirect life cycle, Host-parasite relationship, Effect of parasite on the Host. (4 hrs)</p> <p>Helminthes: introduction of helminths, Groups of Helminths, Phylum: Platyhelminths. (4 hrs)</p> <p>Viruses: Properties of viruses, Structure of virus, General Steps in Viral Multiplication, Classification of virus, Bacteriophages, Two life cycle of the bacteriophage. (4 hrs)</p>
--	--

<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	The main strategy that will be adopted in delivering this module is to encourage students to participate in class discussions, explain lectures by using modern technologies, improving and expanding their critical thinking skills. Also use brainstorming questions for students.

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	93	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	6
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	132	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	9
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	225		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	14	10% (10)	Lac ( 5, 8 and 9) Lab (1, 3, 4, 9,10,11)	LO #2, #3, #4; #5;
	<b>Assignments</b>	5	10% (10)	2, 7 , 9, 10, 12	#6; #7; #8 ; #9; #10;#11
	<b>Projects / Lab.</b>	6	10% (10)	3,4,7,9,13, 14	LO #1, #6 ; #10; #11
	<b>Report</b>	6	10% (10)	Lab 2,4,5,8,9,10	LO #3, #4; #5;
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	1,2,3,4,5,6	LO #1-#6
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	Material Covered
<b>Week 1</b>	Introduction of general biology
<b>Week 2</b>	Chemistry of Life
<b>Week 3</b>	Cell Structure and prokaryotic cell
<b>Week 4</b>	Eukaryotic cell structure
<b>Week 5</b>	Structure of Membranes
<b>Week 6</b>	Organelles of Cell
<b>Week 7</b>	Cell Cycle
<b>Week 8</b>	Nucleic Acid (DNA, RNA)
<b>Week 9</b>	Protein synthesis

<b>Week 10</b>	Midterm Exam
<b>Week 11</b>	Bacteria
<b>Week 12</b>	Fungi
<b>Week 13</b>	Protists
<b>Week 14</b>	Helminthes
<b>Week 15</b>	Viruses
<b>Week 16</b>	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
<b>Week 1</b>	Lab 1: Biosafety
<b>Week 2</b>	Lab 2: Microscope
<b>Week 3</b>	Lab 3: Cell Structure, Prokaryotic
<b>Week 4</b>	Lab 4: Eukaryotic
<b>Week 5</b>	Lab 5: Diffusion in cell membrane
<b>Week 6</b>	Lab 6: Movement across the cell membrane in plant cell
<b>Week 7</b>	Exam
<b>Week 8</b>	Lab 7: cell division in yeast
<b>Week 9</b>	Lab 8: Blood component
<b>Week 10</b>	Lab 9: bacteria part 1
<b>Week 11</b>	Lab 10: Bacteria part 2
<b>Week 12</b>	Lab 11: Viruses
<b>Week 13</b>	Lab 12: Fungi
<b>Week 14</b>	Lab 13: protists
<b>Week 15</b>	Lab 14: Helminthes

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Mason, K. A., T. Duncan, G. Johnson, J. B. Losos, and S. R. Singer. 2018. Understanding Biology, 2 nd Ed. New York, NY: McGraw-Hill Education, Inc. (M)	No

<b>Recommended Texts</b>	Raven 2019, Biology, 12th edition, McGraw Hill	No
--------------------------	--	----

### GRADING SCHEME

#### مخطط الدرجات

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

#### Note:

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. 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