



UNIVERSITI TEKNOLOGI MARA

BIO011: BIOLOGY FOR PRE DIPLOMA I

Course Name (English)	BIOLOGY FOR PRE DIPLOMA I APPROVED
Course Code	BIO011
MQF Credit	3
Course Description	This course involves the basic concepts and principles of biology that covers the surface information about cells structure, component and function, basic animal and plant tissue, structure and function, organ structures and functions, basic concept of nutrition in organism such as digestive process in human and photosynthesis process in plant. Throughout the course, students will be equipped with basic knowledge in biology that is very important for detailed learning process at diploma and degree level.
Transferable Skills	Teamwork, Confident, Critical thinking, Leadership
Teaching Methodologies	Lectures, Lab Work, Tutorial
CLO	CLO1 Apply the basic concepts and principles related to biology. CLO2 Display practical skills and complete the laboratory datasheet related to basic concepts and principles in biology CLO3 Demonstrate teamwork skills in group project related to living organism
Pre-Requisite Courses	No course recommendations
Topics	
1. Introduction to Biology 1.1) 1.1 What is biology 1.2) 1.1.1 Definition of biology 1.3) 1.1.2 Biology in real life 1.4) 1.5) 1.2 Branches in biology 1.6) 1.2.1 Fields in biology 1.7) 1.2.2 Biology in occupation 1.8) 1.9) 1.3 Characteristics of life 1.10) 1.3.1 Identify living organism from non- living 1.11) 1.3.2 Characteristic of living organism 1.12) 1.13) 1.4 Hierarchy of organization of organisms 1.14) 1.4.1 Definition of organ system, organ, tissue and cell 1.15) 1.4.2 Organization of organism 1.16) 1.4.3 Histology 1.17) 1.4.3.1 Animal tissues 1.18) 1.4.3.2 Plant tissues	
2. Introduction to Cell 2.1) 2.1 Theory of cell and biogenesis 2.2) 2.2 Unicellular and multicellular organisms: definition, example, and differences 2.3) 2.3 Prokaryotic and eukaryotic cell 2.4) 2.4 The structure and function of cellular components of prokaryotic and eukaryotic cell 2.5) 2.5 Comparison of animal cell, plant cell and bacteria cell	

3. Plasma Membrane and Transport

- 3.1) 3.1 Plasma Membrane
- 3.2) 3.1.1 Structure according to Fluid Mosaic Model
- 3.3) 3.1.2 Components involve and Structure plasma membrane
- 3.4) 3.2 Characteristic of plasma membrane
- 3.5) 3.2.1 Definition of permeability: permeable, semi permeable, selectively permeable, impermeable
- 3.6) 3.3 Type of substance across plasma membrane
- 3.7) 3.3.1 Definition solutions, solvents, and solutes
- 3.8) 3.3.2 Tonicity: Hypertonic, hypotonic, and isotonic
- 3.9) 3.4 Passive transport
- 3.10) 3.4.1 Diffusion
- 3.11) 3.4.2 Osmosis in animal and plant cells
- 3.12) 3.4.3 Facilitated diffusion
- 3.13) 3.5 Active transportation
- 3.14) 3.5.1 Endocytosis (pinocytosis, phagocytosis, receptor-mediated endocytosis)
- 3.15) 3.5.2 Exocytosis
- 3.16) 3.6 Comparison between passive and active transport

4. Biodiversity and Ecology

- 4.1) 4.1 Hierarchy Classification of Organism
- 4.2) 4.1.1 Introduction of kingdoms
- 4.3) 4.1.2 Systematic taxonomy
- 4.4) 4.1.3 Scientific names
- 4.5) 4.2 Biodiversity
- 4.6) 4.2.1 Level of biodiversity - organism, species, population, community, ecosystem, biome, and biosphere
- 4.7) 4.2.2 Biotic and Abiotic Factors
- 4.8) 4.3 Interaction among organisms
- 4.9) 4.3.1 Symbiosis
- 4.10) 4.3.1.1 Mutualism,
- 4.11) 4.3.1.2 Ammensalism
- 4.12) 4.3.1.3 Commensalism,
- 4.13) 4.3.2 Competition (intra and interspecific)
- 4.14) 4.3.3 Parasitism
- 4.15) 4.3.4 Predation: carnivore
- 4.16) 4.3.5 Herbivore

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Group based assignment related to living organisms to show student's leadership and teamwork skills . This is to demonstrate 'Interpersonal skills' (LOD 4) in MQF 2.0.	20%	CLO3
	Lab Exercise	Written reports and practical skills assessment on scientific procedures related to basic concepts and principles in biology. This is to demonstrate 'Practical skills' (LOD3) in MQF 2.0.	10%	CLO2
	Test	1 test related to the basic concept and principles in Biology. This is to emphasize the attribute of 'Knowledge and understanding' (LOD 1) in MQF 2.0.	30%	CLO1

Reading List	Recommended Text
	<ul style="list-style-type: none"> • Lee Soon Ching, Sudani Sudin, Nalini B., Jacqueline R. S., Nor Azlina Abd Aziz and Fariza Zakaria (Editor) 2013, <i>Biology For Matriculation Semester 2</i>, 3rd Ed., Oxford Fajar • Liew Shee Leong, Sudani Sudin, Kamaludin A Rashid, Lee Soon Ching, Nor Azlina Abd Aziz, Fariza Zakaria 2014, <i>Biology For Matriculation Semester 1</i>, 4th Ed., Oxford Fajar
Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources