



UNIVERSITI TEKNOLOGI MARA

BIO081: BIOLOGY I

Course Name (English)	BIOLOGY I APPROVED
Course Code	BIO081
MQF Credit	4
Course Description	This course will interactively engage students cognitively and scientifically in basic concepts and principles of biology, cytology, histology, physiology, biochemistry, taxonomy, organs and organ systems in human. Students will perform experiments related to basic concepts and principles in biology. Lecture sessions employ a mixture of lectures and active learning (self and peer discussions). The outcomes shall be accessed through a variety of tools which include paper examination, practical reports, assignment and student performance in laboratory and classroom.
Transferable Skills	Demonstrate ability to identify and articulate self skills, knowledge and understanding confidently and in a variety of contexts.
Teaching Methodologies	Lectures, Lab Work, Tutorial
CLO	CLO1 Explain the basic concepts and principles of biology, cytology, histology, physiology, biochemistry, taxonomy, organs and organ systems in human. CLO2 Follow scientific procedures in conducting experiments and complete the laboratory datasheet related to basic concepts and principles in biology. CLO3 Work responsibly with team members in the laboratory and classroom.
Pre-Requisite Courses	No course recommendations
Topics	
1. Introduction to Biology 1.1) What is biology? 1.2) Branches in biology 1.3) Characteristics of life 1.4) Hierarchy of organization of organisms 1.5) Hierarchy of classification of organisms	
2. Introduction to Cell 2.1) Theory of cell and biogenesis 2.2) Prokaryotic and eukaryotic cell 2.3) The structure and function of eukaryotic cell components 2.4) Comparison of animal cell and plant cell 2.5) Unicellular and multicellular organisms: definition, example and differences	
3. Plasma Membrane and Transportation Process 3.1) General function of plasma membrane 3.2) Brief explanation and diagram of membrane structure according to Fluid Mosaic Model 3.3) Definition of permeable, semi permeable, selectively permeable, impermeable membrane, solutions, solvents and solutes 3.4) Differences between active transport and passive transport 3.5) Movement across plasma membrane through passive transportation 3.6) Movement across plasma membrane through active transportation	
4. Organic Compounds 4.1) Carbohydrates 4.2) Lipids 4.3) Protein 4.4) Nucleic acids	

5. Histology

- 5.1) Animal tissues
- 5.2) Plant tissues

6. Organ and Organ Systems

- 6.1) Definition of organ
- 6.2) Definition of systems and brief explanation on function, diagram and components of the systems

7. Nutrition

- 7.1) Definition of autotroph and heterotroph
- 7.2) Nutrition of autotrophic organisms
- 7.3) Nutrition of heterotrophic organisms
- 7.4) Human digestive system

8. Homeostasis

- 8.1) Definition and the importance of homeostasis
- 8.2) Concepts of positive and negative feedback mechanisms: definition, explanation and examples
- 8.3) Renal osmoregulation by kidney
- 8.4) Control in body temperature
- 8.5) Control in blood sugar level

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	teamwork	2%	CLO3
Assignment	responsibility	2%	CLO3	
Assignment	content	6%	CLO1	
Quiz	quiz 1	2%	CLO1	
Quiz	quiz 2	2%	CLO1	
Quiz	quiz 3	2%	CLO1	
Quiz	quiz 4	2%	CLO1	
Quiz	quiz 5	2%	CLO1	
Test	test 1	10%	CLO1	
Test	test 2	10%	CLO1	
Visual Assessment	lab safety	2%	CLO2	
Visual Assessment	responsibility	2%	CLO3	
Visual Assessment	teamwork	2%	CLO3	
Visual Assessment	technique/skills	4%	CLO2	
Written Report	laboratory report 1	2%	CLO2 , CLO3	
Written Report	laboratory report 2	2%	CLO2 , CLO3	
Written Report	laboratory report 3	2%	CLO2 , CLO3	
Written Report	laboratory report 4	2%	CLO2 , CLO3	
Written Report	laboratory report 5	2%	CLO2 , CLO3	

Reading List	Recommended Text	Reference Book Resources
	<ul style="list-style-type: none"> • Kantasamy, N., Abd. Rahman, A. R., Gan, G.H., 2006, <i>Basic Biology. Pre-Science Series</i>, Ed., , McGraw Hill, Kuala Lumpur [ISBN:] • Lee Ching 2004, <i>Text Pre-U STPM Matriculation Biology Vol.1.</i>, Ed., , Longman Malaysia Sdn. Bhd. [ISBN:] • Ainun Jariah Manaf; Siti Suhaila Harith 2013, <i>Biology: Fundamental Principles</i>, Universiti Teknologi MARA Cawangan Pahang Pahang, Malaysia [ISBN: 9789832607335] 	<ul style="list-style-type: none"> • Campbell, N.A. and Reece, J.B. 2007, <i>Biology</i>, 7 Ed., , Pearson [ISBN:] • Solomon, E. P. Berg, L. R. and Martin, D. W. 2005, <i>Biology</i>, 7 Ed., , Thomson Learning, Inc. [ISBN:] • Starr, C. and Taggart, R. 2000, <i>Biology: The Unity and Diversity of life</i>, 9 Ed., , Brooks & Cole [ISBN:] • <i>Any A-Level and O-level Biology text books</i>
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	