



UNIVERSITI TEKNOLOGI MARA

BIO460: BIOLOGICAL DIVERSITY

Course Name (English)	BIOLOGICAL DIVERSITY APPROVED
Course Code	BIO460
MQF Credit	4
Course Description	This course provides an introduction to the topic of biodiversity. Lectures emphasize the science of systematics, taxonomy, classification, nomenclature, phylogenetics, evolution, ecology, and, the role of biodiversity in sustainability and conservation of biodiversity. This course begins with introductory, and cover fundamental scientific concepts that will be used throughout the course. Later, lectures include a survey of the world's biodiversity, with emphasis on the most diverse taxa. These core lectures include a brief look through geologic time and how biodiversity has evolved over geologic time. This course employs the six-kingdom classification system according to the recommended textbook. For final examination, quizzes, test and assignments, questions will be based on material presented in the lectures and laboratory practical (written, spoken, presented on the computer, etc.), and information in required reading assignments, i.e., All information presented in lecture and practical, and assigned is testable. This course is also available on Massive Open Online Course (MOOC) via : https://www.openlearning.com/courses/biological-diversity
Transferable Skills	The programme concentrates on the biological principles underlying biodiversity, its conservation, its assessment and management. A wide range of options is available with the opportunity to combine academic topics with "hands-on " practical conservation.
Teaching Methodologies	Lectures, Web Based Learning, Presentation, Project-based Learning
CLO	CLO1 State evidences of macroevolutionary processes to display the wide diversity of biological organisms CLO2 Classify the diversification of biological organism by demonstrating the ability to converse and maintain interactions with others through laboratory and field experiments CLO3 Demonstrate the ability to productively participate in group activities
Pre-Requisite Courses	No course recommendations
Topics	
1. Introduction to biological diversity 1.1) 1.1 National policy on biological diversity 1.2) 1.2 Rich diversity of Malaysian flora and fauna 1.3) 1.3 Biodiversity crisis 1.4) 1.4 Conservation of biodiversity	
2. Classification 2.1) 2.1 Binomial system of nomenclature 2.2) 2.2 Taxonomy 2.3) 2.3 Classification systems 2.4) 2.4 The science of systematic 2.5) 2.5 Evolution of prokaryotes and eukaryotes	
3. Viruses 3.1) 3.1 The origin of virus 3.2) 3.2 Characteristics of viruses 3.3) 3.3 Viral classification 3.4) 3.4 Lytic and lysogenic	

4. Bacteria

- 4.1) 4.1 Domain Eubacteria
- 4.2) 4.2 Domain Archaeobacteria
- 4.3) 4.3 Ecological roles and economic importance of
- 4.4) prokaryotes
- 4.5)
- 4.6) LAB 1 : Prokaryotic and eukaryotic cells

5. Protista

- 5.1) 5.1 History of protists
- 5.2) 5.2 General characteristics
- 5.3) 5.3 Five supergroups of protistans

6. Fungi

- 6.1) 6.1 General characteristics
- 6.2) 6.2 Five phyla of fungi
- 6.3) 6.3 Symbiotic relationship
- 6.4) 6.3 Ecological and economic importance

7. Plants

- 7.1) 7.1 Origin and evolution of plants
- 7.2) 7.2 Plant adaptation
- 7.3) 7.3 Four major groups of plant

8. Invertebrates

- 8.1) 8.1 Origin of animals
- 8.2) 8.2 General characteristics
- 8.3) 8.3 Variation in animals
- 8.4) 8.4 Major phyla in invertebrates
- 8.5)
- 8.6) LAB 2 : Animalia

9. Vertebrates

- 9.1) 9.1 Fishes
- 9.2) 9.2 Amphibians
- 9.3) 9.3 Reptiles
- 9.4) 9.4 Birds
- 9.5) 9.5 Mammals
- 9.6)
- 9.7) Field Trip: Students will apply a variety of basic field methods and techniques to observe, quantify, and evaluate local biodiversity and ecosystems. The fieldtrip will focus on the identification, life history, and ecology of flora and fauna in terrestrial and/or aquatic systems.

Assessment Breakdown		%		
Continuous Assessment		100.00%		
Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Group Project	Short video	25%	CLO1
	Test	Test 1	25%	CLO2
	Test	Final Test	40%	CLO2
	Written Report	Group Project	10%	CLO3
Reading List	Recommended Text	<ul style="list-style-type: none"> Jane B. Reece, Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky 2013, <i>Campbell Biology</i>, 11 Ed., Benjamin-Cummings Publishing Company [ISBN: 978-03217756] 		
	Reference Book Resources	<ul style="list-style-type: none"> Eldra Solomon, Linda Berg, Diana Martin 2010, <i>Biology</i>, 9 Ed., Cengage Learning [ISBN: 978-049531714] Cecie Starr, Ralph Taggart, Christine Evers 2012, <i>Biology: The Unity and Diversity of Life</i>, 13 Ed., Cengage Learning [ISBN: 9781111425692] 		
Article/Paper List	This Course does not have any article/paper resources			
Other References	This Course does not have any other resources			