UNIVERSITI TEKNOLOGI MARA

BIO712: SUSTAINABLE ECOSYSTEMS

Course Name (English)	SUSTAINABLE ECOSYSTEMS APPROVED
Course Code	BIO712
MQF Credit	3
Course Description	This course provides opportunity for students to comprehend the concept of ecosystems and their related biodiversity within the context of sustainability, for the well being of the Earth. Initial discussions relate to history of conservation, environmentalism and sustainability. Students will learn, discuss and evaluate the key ecosystem processes that sustain ecosystems and the anthropogenic activities that impact on ecosystems. The effect of climate change on biodiversity and its adaptation, the sustainable utilisation and commercialisation of biodiversity, and community participation as important tools for conservation are addressed. Ecosystem based management for conserving and sustaining biodiversity is also introduced. Teaching methods include case studies, lectures and field trips.
Transferable Skills	Literature Search, Scientific Writing, Communication
Teaching Methodologies	Lectures, Field Trip, Case Study, Discussion
CLO	CLO1 To express and generalize on the history of conservation, environmentalism and sustainability CLO2 To differentiate the anthropogenic activities that impacts on ecosystems and their related biodiversity, including ecosystem linkages and services CLO3 To analyse and compare the processes that sustains ecosystems and their related biodiversity CLO4 To compare and review the current and emerging biodiversity conservation and management instruments and efforts, in Malaysia and globally
Pre-Requisite Courses	No course recommendations

Topics
1. Understanding the Environment I 1.1) History of Resource Use 1.2) Development 1.3) History of Conservation and Environmentalism
2. Understanding the Environment II 2.1) Environmental Problems and Their Causes 2.2) Sustainability: Concept and Challenges
3. Ecosystem Dynamics I 3.1) Energy and Nutrient Flow
4. Ecosystem Dynamics II 4.1) Primary and Secondary Production
5. Ecosystem Dynamics III 5.1) Ecosystem Services
6. Ecosystem Dynamics IV 6.1) Ecosystem Linkages
7. Ecosystem Diversity & Biodiversity I 7.1) Tropical Forest Ecosystem
8. Ecosystem Diversity & Biodiversity II 8.1) Tropical Freshwater Ecosystems

9. Ecosystem Diversity & Biodiversity III 9.1) Tropical Estuarine, Marine & Coastal Ecosystems
10. Anthropogenic Impacts on Ecosystems I 10.1) Pollution 10.2) Invasive Species
11. Antrhopogenic Impacts on Ecosystems II 11.1) Habitat Fragmentation 11.2) Deforestation 11.3) Food Production & Agriculture
12. Antrhopogenic Impacts on Ecosystems III 12.1) Extractive Industries 12.2) Emerging Impacts
13. Ecosystem Conservation I 13.1) Policy and Legislation in Relation to Biodiversity 13.2) Sustainable Utilisation and Commercialisation of Biodiversity
14. Ecosystem Conservation II 14.1) Biodiversity Conservation, Climate Change and Adaptation 14.2) Ecosystem Based Management

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Article Review	20%	CLO3
Assignment	Case Study	20%	CLO4
Test	Test 2	30%	CLO2
Test	Test 1	30%	CLO1

Reading List

Reference Book Resources

- **Cunningha, P. & M.A. Cunningham 2008, *Principles of Environmental Science*, 4 Ed., McGRaw-Hill International New York [ISBN: 0-07-110194-3]**
- **Minsitry of Natural Resources & Environment Malaysia 2010, *A Common Vision On Biodiversity*, 2 Ed., Ministry of Natural Resources & Environment Putrajaya [ISBN: 983-42956-8-4]**
- **James Willard Nybakken 2001, *Marine Biology*, 5 Ed., Benjamin-Cummings Publishing Company [ISBN: 0-321-03076-1]**
- **Richard T. Wright,Dorothy F.. Boorse 2014, *Environmental Science*, 12 Ed., Pearson US [ISBN: 1-292-02084-9]**
- **Millet, G. T & S.E. Spoolman 2012, *Living In the Environment*, 18 Ed., Cengage [ISBN: 1-305-00435-1]**
- **Thomas Michael Smith,Robert Leo Smith 2013, *Elements of Ecology*, 8 Ed., Pearson [ISBN: 1-292-02759-2]**
- **Charles J. Krebs 2014, *Ecology*, 6 Ed., Pearson US [ISBN: 1-292-02627-8]**

Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources