UNIVERSITI TEKNOLOGI MARA

AGR593: INTRODUCTION TO FISHERY MANAGEMENT

Course Name (English)	INTRODUCTION TO FISHERY MANAGEMENT APPROVED
Course Code	AGR593
MQF Credit	3
Course Description	This introductory unit provides the student with an understanding of the outline the principles of fisheries management, describe the components of the fisheries management process, identify fisheries management issues, describe the aquatic ecology, water quality requirements and fish health. Additionally, this course will also covers the fish biology, fish breeding and rearing.
Transferable Skills	Knowledge, communication and teamwork life long learning gained from lectures via discussions with lecturers.
Teaching Methodologies	Lectures, Field Trip, Discussion, Presentation
CLO	CLO1 Describe the concepts and importance of fisheries management. CLO2 Identify the aquatic ecology, water requirement and fish health. CLO3 Develop an understanding of the ichthyology, fish breeding and rearing.
Pre-Requisite Courses	No course recommendations

Topics
1. Introduction to fisheries 1.1) 1.1 Fisheries in Malaysia production 1.2) 1.2 Fisheries in Global Production 1.3) 1.3 The important of fisheries
2. Management fisheries 2.1) 2.1 Principles of management in fisheries 2.2) 2.2 The Fisheries Problem 2.3) 2.3 The Fisheries Management Regime 2.4) 2.4 Fisheries Management Systems 2.5) 2.4.1 Biological fisheries management 2.6) 2.4.2 Direct economic restrictions 2.7) 2.4.3 Indirect economic fisheries management 2.8) 2.4.3.1 Taxation 2.9) 2.4.3.2 Property rights 2.10) 2.4.4 The most effective fisheries management system 2.11) 2.5 Monitoring, Control and Surveillance
3. Ecology of aquatic environment 3.1) 3.1 Introduction of aquatic ecology 3.2) 3.2 Freshwater Ecosystems 3.3) 3.3 Marine Ecosystems 3.4) 3.4 Estuaries Ecosystems
4. Water quality and fish health 4.1) 4.1 Water quality for aquaculture ; 4.2) 4.1.1 Temperature 4.3) 4.1.2 Dissolved Oxygen (DO) 4.4) 4.1.3 pH, Carbon Dioxide (CO2) and Alkalinity 4.5) 4.1.4 Ammonia 4.6) 4.2 A brief review of adaptive mechanisms in fish 4.7) 4.2.1 Respiration 4.8) 4.2.2 Osmoregulation 4.9) 4.2.3 Aquatic Chemistry and Pollution 4.10) 4.3 Fish health and disease 4.11) 4.3.1 Introduction to disease concept

4.12) 4.3.2 Major fungal pathogen 4.13) 4.3.3 Major bacteria pathogen 4.14) 4.3.4 Major viral pathogen 4.15) 4.3.5 Protozoan and worm 4.16) 4.3.6 Scientific Health Management
5. Ichthyology 5.1) 5.1 Fundamentals of fish morphology, anatomy and physiology 5.2) 5.2 Fish taxonomy 5.3) 5.3 Adaptations, biology and natural history of fishes
6. Fish breeding and rearing 6.1) 6.1 Fish management system 6.2) 6.1.1 Extensive: Pond culture 6.3) 6.1.2 Semi-intensive: Cage and raceway culture 6.4) 6.1.3 Intensive: Recirculating system 6.5) 6.2 Fish breeding 6.6) 6.2.1 Introduction 6.7) 6.2.2 Fish production in various production systems

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Individual written assignment based on the topic of Introduction to fisheries and Management fisheries.	20%	CLO1
Presentation	Video presentation Students will be given a certain topic such as Ichthyology or Fish breeding and rearing. They have to create a video presentation using any suitable methods such as powtoon/recording video. Students need to share the link to the lecturer and the video will be evaluated based on rubric.	20%	CLO3
Test	Online Test	20%	CLO2

Reading List

Reference Book Resources

- **Pillay, T.V.R. 1990, *Aquaculture*, Blackwell Scientific Publications**
- **Abele, L.G. 1982, *The Biology of Crustacea. Vol.2: Embryology, Morphology and genetics*, Academic Press, (U.S.A.)**
- **Atwood, H.L. and Sandeman, D.C. 1982, *The Biology of Crustacea. Vol.3: Neurobiology: Structure and Function*, Academic Press U.S.A**
- **Bartlett, S. and Hufflett, P. 1991, *Mussel Farm Economic Study*, New Zealand F.I.B.**
- **1976, *Marine Mussels, their Ecology and Physiology* [ISBN: BAYNE, B.L.]**
- **Claus, C; De Pauw, N. and Jaspers, E. 1981, *Nursery Culturing of Bivalve Molluscs***
- **Selvamani, B.R. and Mahadevan, R.K. 2008, *Aquaculture: Trends and Issues, First Edition***
- **Bardach, J.E., Ryther, J.H. and McLarney, W.O. 1972, *Aquaculture; the farming and husbandry of freshwater and marine organisms*, Wiley**
- **Boyd, C. E. . 1990, *Water quality in ponds for aquaculture*, Alabama Agricultural Experiment Station, Auburn University, Auburn, Alabama**
- **Boyd, C. E. 1995, *Bottom soils, sediment, and pond aquaculture*, Chapman and Hall, New York**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources