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MMS3623: Marine Resource Management (Lecture Note)

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LECTURE NOTE

MARINE RESOURCES MANAGEMENT

(MMS3623)

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PREFACE

This course is an elective subject with 3 credits (5 ECTS), offered specifically to Bachelor of Science (Marine Science) students; and was developed by Faculty of Science & Marine Environment, Universiti Malaysia Terengganu. Students will be introduced to the concepts of marine resources and management of marine environments, interactions between flora and fauna ecosystem which include fisheries resources, coral reefs communities and mangrove forests. Furthermore, the course will highlight the marine resources policy and its implication towards the environmental and social aspect. In the end of this course, students will be able to understand the concept of marine pollution, fisheries resources management, food security and safety, marine conservation, marine protected areas, coastal zone management and strategies for sustainable development. Online teaching, video lectures, group discussion and industrial in the classroom are included as the teaching methods; whereas students are assessed via written report, videos/poster presentation and final examination. The chapters in this course are:

Chapter #1: Introduction to Marine Resources

Chapter #2: Conservation of Marine Resources

Chapter #3: Pollution of Marine Resources

Chapter #4: Fisheries Resources Sustainability

Chapter #5: Seafood Safety and Security

Chapter #6: Policies and Acts to Manage Marine Resources

Chapter #7 - #9: Current issues discussion.

Target audience: Open for all students from Year 2 and Year 3.



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BIOGRAPHY OF THE AUTHORS

1. Assoc. Prof. Dr. Ong Meng Chuan is an Associate Professor at the Marine Science Program, Faculty of Science and Marine Environment, Universiti Malaysia Terengganu, Terengganu, Malaysia. He holds a doctoral degree in Marine Pollution specifically in metals pollution from the University of South Brittany, France. His research focuses on the metal content in sediment samples which can act as geo–marker for pollution studies. Apart from the sediment samples, his research also included biota samples of fishes, crustaceans, bivalves, molluscs and plants such as seaweed and seagrass. From these biota samples, the suitability of using these organisms as bioindicator can be identified which best reflect the environmental quality. Hence, risk assessment towards human health by consuming these organisms can be estimated. He is currently actively gathering all the Malaysian marine aquatic environment data to be stored in the GIS database. With this database, these data can easily refer by other researchers for their studies.
2. Dr. Adiana Ghazali Lecturer in the Marine Science Program, Faculty of Science and Marine Environment, University Malaysia Terengganu, Terengganu, Malaysia. She holds a doctoral degree in Chemical Oceanography specifically in inorganic pollutants and water quality from the Universiti Malaysia Terengganu, Malaysia. Her research interests are largely focus on the understanding of metals and rare earth elements with the application of spectrometric and chemometrics techniques, as well as exploring the speciation of inorganic compounds circulation in the aquatic ecosystem. Besides that, she also works on the fundamental methodologies of metals speciation in the marine ecosystem of Brunei Bay, Borneo as well as in tracing the sources of pollutants by using stable lead isotopes. Additionally, she has been involved with water quality analysis of freshwater system in Malaysia and tracing the sources of pollutant by using chemometrics techniques.



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BIOGRAPHY OF THE AUTHORS

3. Dr. Tuan Mohamad Fauzan Tuan Omar is a Lecturer in the Marine Science Program, Faculty of Science and Marine Environment, University Malaysia Terengganu, Terengganu, Malaysia. He holds a doctoral degree in Marine Pollution specifically in emerging pollutants from the Universiti Putra Malaysia, Malaysia. His research focuses on the monitoring of emerging organic pollution in marine and coastal ecosystem. Currently his research work is focusing on the occurrence, distribution and risk assessment of parabens, bisphenol-A (BPA), 17β -estradiol (E2) and endocrine disrupting chemicals (EDCs) as well as optimization of analytical methods in environmental samples.
4. Madam Meii Mohamad Norizam is a Lecturer in the Marine Science Program, Faculty of Science and Marine Environment, University Malaysia Terengganu, Terengganu, Malaysia. Her research interest includes Ecosystem Modelling, Fish Ecology and Fish Diet & Marine Food Webs. Currently she currently working on the estimation of ecological carrying capacity in managed realignment areas in the Humber Estuary, in particular the Alkborough Flats and Welwick. In this study, the ecological carrying capacity is defines as the potential maximum fishery production that can be supported by the resources, without causing any changes to the system. The estimation of fishery production is based on the community-system models, which simulate flow of energy (in terms of biomass) in the system. These interactions models are constructed using Ecopath with Ecosim.