



## UNIVERSITI TEKNOLOGI MARA

### BDY512: COASTAL AND MARINE HABITATS

<b>Course Name (English)</b>	COASTAL AND MARINE HABITATS <b>APPROVED</b>
<b>Course Code</b>	BDY512
<b>MQF Credit</b>	3
<b>Course Description</b>	This course is an introduction to coastal and marine habitats. Topics include in-depth studies of marine ecology and marine organism including physiology, behaviour and adaptation of the marine organism. Students are also required to discuss the role of marine ecosystem and attraction to each other
<b>Transferable Skills</b>	On completion of the course the student will be able to: <ol style="list-style-type: none"><li>1. Apply the knowledge of coastal and marine habitats to the management of various marine environments.</li><li>2. Able to establish and evaluate suitable experiment and inventory in the sampling area.</li><li>3. Communicate effectively with others to solve some given situations and problems.</li><li>4. Apply the proper skill to analyze and differentiate between each marine environments and marine animals.</li></ol>
<b>Teaching Methodologies</b>	Lectures, Field Trip, Discussion, Presentation
<b>CLO</b>	CLO1 Explain coastal and marine habitats. CLO2 Differentiate between each marine coastal region and differentiate each marine coastal habitat in sandy shores, rocky shores, estuaries, wet land and coral reefs. CLO3 Identify the basic information about marine plant and animal. CLO4 Discuss basic inventory and sampling method technique used for coastal and marine habitat.
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<b>1. 1. Introduction to Marine</b> 1.1) Energy exchange between ocean and atmosphere.	
<b>2. 2. Fundamental of Marine Ecology</b> 2.1) Physical and chemical properties of seawater – temperature, salinity, density, dissolved gases, climate condition. 2.2) Sediment properties. 2.3) Circulation systems – upwelling, downwelling, termohaline circulation, deep ocean current.	
<b>3. 3. Marine Animal and Plants</b> 3.1) Classification of living organism - Three Domain: Archae, Bacteria, Eukarya. 3.2) Classification based on Five Kingdom. 3.3) Classification based on taxonomy. 3.4) Classification based on habitat and mobility - plankton, nekton, benthos. 3.5) Primary producers, consumers, detritivores. 3.6) Adaptations of organisms living in estuary, intertidal, coral reef, oceanic-pelagic, benthic, hydrothermal vent, polar sea.	
<b>4. 4. Intertidal Communities</b> 4.1) Coast - primary and secondary coast. 4.2) Beach - anatomy, beach dynamic (natural process). 4.3) Coastal circulation. 4.4) Zonations: high tide, middle tide, low tide. 4.5) Main features of sandy beach, mudflat, rocky shore.	

**5. 5. Estuaries**

- 5.1) Types of estuaries - well-mixed estuary, partially mixed estuary, Fjord-type estuary.
- 5.2) Sediment formation.
- 5.3) Plant communities in estuary - true mangroves, associate mangroves, salt marsh.
- 5.4) Plant adaptations.
- 5.5) Ecosystem services.

**6. 6. Coral Reef Communities**

- 6.1) Main features of tropical coral reef, kelp forest, seagrass bed.
- 6.2) Species diversity.
- 6.3) Importance to human and marine ecosystem.

**7. 7. Geochemical Cycles**

- 7.1) Primary production, photosynthesis, chemosynthesis.
- 7.2) Distribution and abundance of elements – reservoirs, fluxes, seasonal variations.
- 7.3) Biogeochemical cycles of carbon, nitrogen, sulphur, phosphorous.

**8. 8. Coastal and Marine Habitats Management**

- 8.1) Aquaculture - importance and consequences to the environment.
- 8.2) Climate change, habitat disturbance, overfishing.
- 8.3) Sustainable marine resource management.
- 8.4) Conservation.
- 8.5) Marine Law (UNCLOS).
- 8.6) Recreation and tourism.

Assessment Breakdown	%
Continuous Assessment	50.00%
Final Assessment	50.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Coastal management	20%	CLO4
	Presentation	Marine Plants and Animals.	10%	CLO3
	Test	Test 1 - Introduction to Marine, Fundamental of Marine Ecology	20%	CLO1

Reading List	Reference Book Resources
	<ul style="list-style-type: none"> <li>• Keith Stowe 1996, <i>Exploring Ocean Science, Study Guide</i>, Wiley [ISBN: 0471128422]</li> <li>• Keith Sverdrup 2008, <i>Introduction to the Worlds Oceans</i>, McGraw-Hill Higher Education [ISBN: 0077415590]</li> <li>• G. Tyler Miller, Scott Spoolman 2018, <i>Environmental Science</i>, Cengage Learning [ISBN: 9781337569613]</li> <li>• Daniel B. Botkin 2014, <i>Environmental Science: Earth as a Living Planet, 9th Edition</i>, Wiley Global Education [ISBN: 1118801768]</li> <li>• Morrissey, James L. Sumich, Deanna R. Pinkard-Meier 2016, <i>Introduction to the Biology of Marine Life</i>, Jones &amp; Bartlett Learning [ISBN: 1284090507]</li> <li>• Timothy Beatley, David Brower, Anna K. Schwab 2002, <i>An Introduction to Coastal Zone Management</i>, Island Press [ISBN: 1559639156]</li> <li>• Jeffrey S. Levinton 2011, <i>Marine Biology: Function, Biodiversity, Ecology</i>, Oxford University Press [ISBN: 9780199766611]</li> <li>• Virginia L. Cass-Dudley, James L. Sumich, Virginia Dudley, Gordon Dudley 2016, <i>Laboratory and Field Investigations in Marine Life</i>, Jones &amp; Bartlett Publishers [ISBN: 9781284090543]</li> <li>• Martin R. Speight, Peter A. Henderson 2010, <i>Marine Ecology</i>, John Wiley &amp; Sons [ISBN: 9781405126991]</li> <li>• Michel J Kaiser 2011, <i>Marine Ecology: Processes, Systems and Impacts</i>, Oxford University Press [ISBN: 9780199227020]</li> <li>• George Karleskint, Richard Turner, James Small 2012, <i>Introduction to Marine Biology</i>, Cengage Learning [ISBN: 9781133364467]</li> </ul>
<b>Article/Paper List</b>	This Course does not have any article/paper resources
<b>Other References</b>	This Course does not have any other resources