

SEMESTER I

LSM3254 ECOLOGY OF AQUATIC ENVIRONMENTS

Prerequisite: LSM2251

Workload: 26 lecture hours + 24 tutorial/practical hours

Course description:

Aquatic environments make up >70% of the Earth's surface. They host a huge diversity of life and ecosystems, many of which are vital to man. Topics covered in this module include the diversity and ecology of freshwater and marine habitats and organisms, the impacts of humans on these environments, and the conservation and management of these critical resources. Overall learning outcomes include an appreciation and understanding of aquatic habitats, their physical and biological properties and their associated ecosystems. The importance of both marine and freshwater environments to Singapore will be highlighted.

S/N	Topics	Lecture hours
1.	Freshwater and Marine environments: Introduction: Course overview; linking freshwater and marine biology	2 DY/PT
2.	Freshwater environments: Topics covered will include: - Ecological characteristics of fresh water - A brief survey of freshwater environments including natural lotic (e.g., streams) and lentic (e.g., lakes) environments, and artificial or modified environments (e.g., urban habitats such as canals and reservoirs) and their respective biodiversity - Population and community ecology in freshwater environments - Ecology of freshwater ecosystems	10 DY
3.	Marine environments: Topics covered will include: - Estuaries and the interface between freshwater and marine systems. - Introduction to oceanography and the marine environment - Plankton and primary productivity - Intertidal (rocky shore and soft sediments) - Coral reefs, sea grasses and mangroves	10 PT
4.	Freshwater and Marine environments: Conservation and management of aquatic environments; course review	4 DY/PT
		Total Lectures: 26h
		Practicals + Tutorial: 24h
		Total hours: 50h

REFERENCES (Recommended text*):

Freshwater environments

*Dodson S, 2004. *Introduction to Limnology*. McGraw-Hill.

Yeo DCJ, Wang LK, Lim KKP, 2010. *Private Lives: An Exposé of Singapore's Freshwaters*. Raffles Museum of Biodiversity Research.

Yeo DCJ, Lim KKP, 2011. Freshwater Ecosystems. In: Ng PKL, Corlett RT, Tan HTW (eds.), *Singapore Biodiversity:*

An Encyclopedia of the Natural Environment and Sustainable Development. Editions Didier Millet.

Marine environments

*Castro P, Huber M. *Marine Biology*. McGraw Hill.

Milne D. *Marine Life and the Sea*. Wadsworth.

Sumich J. *An Introduction to the Biology of Marine Life*. McGraw-Hill.

Freshwater and Marine environments

Chuang SH (ed.), 1973. *Animal Life and Nature in Singapore*. Singapore University Press.

Tan HTW, Chou LM, Yeo DCJ, Ng PKL, 2010. *The Natural Heritage of Singapore, 3rd Edn*. Pearson Prentice Hall.

Ng PKL, Corlett RT, Tan HTW (eds.), 2011. *Singapore Biodiversity: An Encyclopedia of the Natural Environment and Sustainable Development*. Editions Didier Millet.

MODE OF ASSESSMENT: Continual assessment 60%; final open-book exam 40%

MODULE CO-ORDINATOR/LECTURER:

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