

SEMESTER I
LSM4257 AQUATIC VERTEBRATE DIVERSITY

Prerequisite: LSM2252 Biodiversity

Preclusion(s): LSM4266 Aquatic Biodiversity

Workload: 32 Lecture hours + 8 Tutorial hours + 12 Practical hours

Aquatic vertebrates are essential components of freshwater and marine ecosystems, often occupying higher trophic/food web levels with wider ecological influence. As relatively sizeable and abundant elements of aquatic ecosystems, these organisms are also central to the ecosystem goods and services provided. Besides fishes, the most speciose extant vertebrate group, the remaining four vertebrate classes all include aquatic lineages. This module offers a firm foundation in the global diversity of aquatic vertebrates in the context of their biology, ecology, and conservation. Emphasis on Southeast Asian aquatic vertebrate biota provides a framework that informs management of regional imperilled freshwater and marine ecosystems.

S/N	Topics	Hours
1.	Aquacity and Challenges of the Aquatic Systems	4 h (Zeehan Jaafar)
2.	Diversity of Cartilagenous Fishes	2 h (Zeehan Jaafar)
3.	Diversity of Bony Fishes	6 h (Zeehan Jaafar)
4.	Field Trip to Jurong Fish Port	4 h (Zeehan Jaafar, Darren Yeo)
5.	Biology of Fishes	4 h (Zeehan Jaafar)
6.	Fish Behaviour and Communication	4 h (Zeehan Jaafar)
7.	Invasive Fishes and Impacts to Native Biota	4 h (Darren Yeo)
8.	Fishes in Extreme Habitats	4 h (Zeehan Jaafar)
9.	Laboratory Session – Fish Dissection	4 h (Zeehan Jaafar, Darren Yeo)
10.	Diversity of Aquatic Amphibians and Reptiles	4 h (Zeehan Jaafar)
11.	Diversity of Aquatic Birds	4 h (Zeehan Jaafar)
12.	Diversity of Aquatic Mammals	4 h (Zeehan Jaafar)
13.	Conservation and Management of Aquatic Vertebrates	4 h (Zeehan Jaafar)
		Lectures: 32 h
		Tutorials: 8 h
		Fieldtrips/Practicals: 12 h
Total hours:		52

TEXT BOOK:

Compulsory reading:

1. Integrated Principles of Zoology 16th Edition 2014 C Hickman, SL Keen, DJ Eisenhour, A Larson, H l'Anson
2. Fishes: An Introduction to Ichthyology 5th Edition 2003 PB Moyle and JJ Cech.
3. Marine Mammal Biology: An Evolutionary Approach 2002 AR Hoelzel (ed).

Supplementary reading:

1. Convergence and Divergence in the Evolution of Aquatic Birds 2001. MV Tuinen, DB Butvill, JAW Kirsch, SB Hedges *Proc. R. Soc. Lond. B* 268:1345–1350
2. The Evolution of Marine Reptiles. 2009. R Motani *Evo Edu Outreach* 2:224–235

ASSESSMENT: 60% CA; Final Exam (Open Book): 40%

MODULE CO-ORDINATOR:

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