

## SEMESTER I

### LSM4257 AQUATIC VERTEBRATE DIVERSITY

**Prerequisite:** LSM2252 Biodiversity

**Preclusion(s):** LSM4266 Aquatic Biodiversity

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

#### **Course description:**

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 imperiled freshwater and marine ecosystems.

S/N	Topics	Hours
1.	Aquatic Lineages and Diversity	4 h (Zeehan Jaafar; Darren Yeo)
2.	Diversity & Biology of Cartilaginous Fishes	4 h (Zeehan Jaafar)
3.	Diversity & Biology of Bony Fishes I	4 h (Zeehan Jaafar)
4.	Diversity & Biology of Bony Fishes II	4 h (Zeehan Jaafar)
5.	Field Trip I	6 h (Zeehan Jaafar; Darren Yeo)
6.	Laboratory I	4 h (Zeehan Jaafar; Darren Yeo)
7.	Diversity & Biology of Amphibians	4 h (Darren Yeo)
8.	Diversity & Biology of Reptiles	4 h (Zeehan Jaafar)
9.	Diversity & Biology of Birds	4 h (Zeehan Jaafar; Darren Yeo)
10.	Field Trip II	6 h (Zeehan Jaafar; Darren Yeo)
11.	Diversity & Biology of Mammals	4 h (Zeehan Jaafar)
12.	Conservation of Aquatic Vertebrates	4 h (Zeehan Jaafar)
13.	Management of Southeast Asian Aquatic Vertebrates	4 h (Zeehan Jaafar; Darren Yeo)
		Lectures: 30 h Tutorials: 10 h Fieldtrips/Practicals: 16 h
	<b>Total hours:</b>	<b>56</b>

#### **TEXT BOOK:**

##### **Compulsory reading:**

1. Integrated Principles of Zoology 17th 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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