Module Definition Form (MDF)

Module code: MOD002799	**Version:** 9 **Date Amended:** 10/Jul/2025

1. Module Title
Vertebrate Biology

2a. Module Leader
Sarah Hart

2b. School
School of Life Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
5

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	None		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Vertebrates account for fewer than 1% of known species of animal life and yet they (including humans) are some of the most successful and widely adapted animals on earth. They occupy terrestrial, arboreal or marine habitats and have several different forms of locomotion. In this module you will focus on evolution, embryology and developmental genetics, and the comparative anatomy and physiology of vertebrates within a taxonomic framework. You will learn cladistical analysis (species classification) to help you to understand the evolution and taxonomy of vertebrates, exploring why they have evolved in certain ways, using skull analysis to support your learning. You will learn the processes of dissection to allow you to make comparisons of different anatomical structure and function and evaluate the differences you discover. You will also develop key employability skills including critical thinking, teamwork, resilience as well as self-management, IT and communication.

Vertebrate biology provides detailed knowledge of the embryological processes and developmental genetics and vertebrate structural, functional and anatomical adaptations all leading to a variety of careers in the life sciences.

6b. Outline Content

- Origin of chordates
- Early vertebrates
- Vertebrate developmental biology
- Evolution & genetics
- Musculature
- Bone & cartilage development
- Skeletal system & appendicular system
- Chemosensory systems
- Laboratory dissection
- Laboratory skull analysis
- Laboratory cladistics
- Chondrichthyes biology
- Osteichthyes biology
- Amphibian biology
- Reptile biology
- Mammal biology
- Aves biology
- Vertebrate flight

6c. Key Texts/Literature

The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources

Access to skull and post-cranial bone collection held by the Department of Life Sciences Access to laboratory facilities, with appropriate technical support

7. Learning Outcomes (threshold standards)		
No.	**Type**	**On successful completion of this module the student will be expected to be able to:**
1	Knowledge and Understanding	Compare and contrast the underlying principles of embryological processes and developmental genetics of different vertebrates
2	Knowledge and Understanding	Compare and contrast vertebrate structural, functional and anatomical adaptations
3	Knowledge and Understanding	Demonstrate synthesis of knowledge in laboratory sessions
4	Intellectual, practical, affective and transferrable skills	Work in a team to critically review the relevant scientific literature to produce a video presentation.

8a. Module Occurrence to which this MDF Refers				
Year	**Occurrence**	**Period**	**Location**	**Mode of Delivery**
2026/7	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	**Hours**	**Learning Outcomes**	**Details of Duration, frequency and other comments**
Lectures	21	1-4	2 x 1 hr + 10 x 2 hrs lecture/active learning
Other teacher managed learning	15	1-4	6 x 2 hrs practicals + 3 hrs revision
Student managed learning	114	1-4	Background reading, online activities, preparation for lectures and practicals, and completion of assessments
TOTAL:	150		

9. Assessment for the above Module Occurrence

The assessment for some modules includes a presentation (see below for details on how this particular module is assessed). We recognise that presenting, especially to a large group, can cause significant anxiety or distress for some students. If this may affect you, please contact your Module Leader or the Disability and Neurodiversity Service as early as possible. We will work with you to consider appropriate reasonable adjustments. Depending on your individual needs, these might include, for example, presenting to a smaller group or presenting only to a member of academic staff.

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-3	25 (%)	Fine Grade	30 (%)
6 weekly MCQs (1000 words equivalent) - Best 5 of 6					

Assessment components for Element 010

Component No.	Assessment Title	Submission Method	Components needed for Mark Calculation?
010/1	Test 1	Scheduled Activity: Timetabled assessment task	Best 5 out of 6. All components used in calculation are equally weighted
010/2	Test 2	Scheduled Activity: Timetabled assessment task	
010/3	Test 3	Scheduled Activity: Timetabled assessment task	
010/4	Test 4	Scheduled Activity: Timetabled assessment task	
010/5	Test 5	Scheduled Activity: Timetabled assessment task	
010/6	Test 6	Scheduled Activity: Timetabled assessment task	

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Practical	1,2,4	75 (%)	Fine Grade	30 (%)
Scientific Group Video Presentation (10 mins)					

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]