Module Definition Form (MDF)

Module code: MOD011326	**Version:** 1 **Date Amended:** 11/Apr/2025

1. Module Title
Biology

2a. Module Leader
Briony Witherow

2b. School
Writtle School of Agriculture, Animal and Environmental Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
4

3b. Module Type
Theory and practice (fine graded)

4a. Credits
30

4b. Study Hours
300

5. Restrictions			
Type	**Module Code**	**Module Name**	**Condition**
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	Animal Science Animal Management (Pet Behaviour and Welfare) Animal Management (Zoo and Wildlife Conservation) Conservation and Community Engagement		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

In this module, you'll explore the core biological concepts and principles that form the foundation for advanced studies in biology. It focuses on developing a deep understanding of the relationship between structure and function across a diverse range of plant and animal species, from the molecular level to whole-body systems. You'll investigate the molecular building blocks of life, such as carbohydrates, proteins, nucleic acids and lipids, and by learning their biochemical reactions, you'll gain insights into the molecular basis of cellular function. The module also examines the structure and role of key organelles, helping you to develop an integrated understanding of animal function from the sub-cellular to the whole-organism level. Plant morphology is also covered, with an emphasis on identification and function.

One of the key components of this module is the study of gross anatomy, which involves detailed dissections complemented by histological observations. This approach enables you to explore the intricate relationships between anatomical structures and their integrated physiological functions. By linking molecular and cellular processes to anatomical and physiological systems, the module provides a comprehensive perspective on biology.

6b. Outline Content

Biological Principles: basic cell structure and ultra-structures; modifications to specialised cells; tissues and organs in selected organisms and their relationship to other cellular processes.

Gross Anatomy, Histology and Function - of the musculoskeletal, cardiovascular, respiratory, gastrointestinal, reproductive, urinary system and integument.

Communications - endocrine and nervous systems organisation; roles of key hormones; physiological control of homeostasis, neuromuscular system; interaction with environment.

Comparisons - anatomical differences between taxa and between species within taxa, and or comparisons within groups (e.g. monogastric, ruminant etc.) and effects on physiological function.

Evolution - Speciation and adaptation.

Subcellular Organelles - Structure and function of key organelles and their roles in cell function. Role and function of biological membranes including transport mechanisms.

Bio-molecules – structure, properties and biological functions of major biomolecules and macromolecules e.g. carbohydrates, lipids (fats and oil), amino acids, proteins, and nucleic acids. Chemistry of biomolecule functional groups

Enzymes - classification, properties, models of enzyme function, mechanisms of function, aspects of enzyme inhibition and role of factors such as temperature pH their function

6c. Key Texts/Literature

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

6d. Specialist Learning Resources

None

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	Understand the structure, properties and biological functions of the major biomolecules, sub-cellular organelles and membranes.
2	Knowledge and Understanding	Appreciate the relationship between structure and function in a range of animal species.
3	Knowledge and Understanding	Relate evolutionary adaptations across vertebrate classes to best fit and survive in their environments.
4	Intellectual, practical, affective and transferrable skills	Demonstrate practical laboratory skills for analysing biological specimens and metabolites

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	48	1-3	Weekly 2-hour lectures
Other teacher managed learning	66	1-4	48 hours of Practical sessions and practical drop-in catch-up sessions.. 18 hours - Weekly 1-hour workshops to support theory, practicals and assignments.
Student managed learning	0	1-3	Self-directed study throughout the year.
TOTAL:	114		

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	1-4	50 (%)	Fine Grade	30 (%)
Animal Biology: Structure & Function in class test 2 hours					

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Coursework	1-4	50 (%)	Fine Grade	30 (%)
Comparative Anatomy & Physiology of Animals in class test 2 hours					

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]