Module Descriptor

Title	Vertebrate Physiology		
Session	2026/27	**Status**	Published
Code	BIOL08001	**SCQF Level**	8
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Health and Life Sciences**		
Module Co-ordinator	James Turner		

Summary of Module

The subject matter of this module is comparative vertebrate anatomy and physiology. It introduces the concept of humans as complex vertebrates that have evolved from simpler vertebrates and explores the evolutionary pressures that have moulded structures and influenced function.

The module traces the morphological and physiological changes which have occurred during the evolution of the vertebrates from their invertebrate ancestors. A review of the vertebrate classes including the jawless fish, sharks and rays, bony fish, amphibians, reptiles, birds and mammals reveals that evolution acts by changing existing structures and that all vertebrates have basic characteristics in common that are the products of their common ancestry. Study of vertebrate organ systems is set in the context of evolutionary pressures and includes musculoskeletal, nervous, integumentary, digestive, cardiovascular, respiratory and excretory systems. The module concludes with consideration of human evolution and a brief reflection on the extent to which our cultural evolution is influencing the survival of other vertebrates.

The material is delivered through weekly lectures accompanied by closely related practical classes. The laboratory classes include study of histological slides, preserved specimens and skeletons, and a field trip.

This module builds on the general introduction to organisms and life processes introduced in the level 7 module Diversity of Life. It is a core module for the Applied Bioscience and Zoology at Lanarkshire Campus.

Module Delivery Method	On-Campus[1] ☒	Hybrid[2] ☐	Online[3] ☐	Work -Based Learning[4] ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☒ Lanarkshire ☐ London ☐ Paisley	☐ Online / Distance Learning ☐ Other (specify)	

Terms for Module Delivery	Term 1	☒	Term 2	☐	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
L1	Describe the morphological and physiological changes which have occurred during the evolution of the vertebrates.
L2	Explain how comparative anatomy and physiology are related to vertebrate classification.
L3	Carry out practical investigations using whole organisms and isolated organs.
L4	Demonstrate practical skills in microscopy, scientific drawing and vertebrate classification to class level.
L5	

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 8** Knowledge of vertebrate classification and the physiology and evolution of vertebrate organ systems. Understanding of the relationship between form and function in vertebrates.
Practice: Applied Knowledge and Understanding	**SCQF 8** Manipulative skills using the microscope and scientific drawing, practical procedures through performing laboratory investigations and simple experiments.
Generic Cognitive skills	**SCQF 8**

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

	Evaluate theories of evolution using evidence from the comparative study of vertebrates. Compare and contrast physiological survival strategies, e.g, between endothermy and ectothermy or different modes of respiration. Synthesise information from lectures and laboratory classes.
Communication, ICT and Numeracy Skills	**SCQF 8** Use data collected from laboratory experiments to analyse results and draw conclusions.
Autonomy, Accountability and Working with Others	**SCQF 8** Cooperate in sharing laboratory equipment and resources. Learn to work both individually and in groups depending on exercise. Take responsibility for generating data for use in reports.

Prerequisites	**Module Code**	**Module Title**
	Other	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours. The module will be delivered using a blended approach with lectures, tutorials and practical sessions. Students will be required to access lecture content, links to reference sources and other support materials on the VLE. This will provide students with core material which forms the basis of the syllabus and extensive supplementary material to broaden their reading within the subject. Practical sessions are extremely important in this module and groups will be created within the cohort in order to accommodate laboratory learning. Research skills, academic writing, presentation and practical skills will be enhanced during this module.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	24
Laboratory / Practical Demonstration / Workshop	24
Independent Study	152
n/a	
n/a	
n/a	
TOTAL	200

Indicative Resources

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

Kardong, K.V. (2018) Vertebrates: comparative anatomy, function, evolution. 8th edn. New York: McGraw-Hill Education.

(Covers the whole subject well, but may be too advanced for students with limited background in biology)

AND/OR

Hickman, C.P., Keen, S.L., Eisenhour, D.J. and Larson, A. (2020) Integrated principles of zoology. 18th edn. New York: McGraw-Hill Education.

(About the right level of information but covers invertebrates and other topics not included in this module. It does cover areas that may form part of other second year modules. A particularly good choice for students who think they may take the third year module Animal Diversity, as this textbook is also recommended for that module.)

(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements

In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are attending and participating in all timetabled programme activities including on-campus and online teaching sessions, asynchronous online learning activities, placement, work-based elements, course-related learning resources, and complete assessments and submit these on time.

For the purposes of this module, academic engagement equates to the following:

The university is committed to providing a supportive learning environment that actively facilitates student success. In this module, there is a high degree of student-led flexibility. You are academically engaged if you are regularly engaged with scheduled live sessions on-campus and online, including engaging with online learning activities in your own time, course-related learning resources, and with timely completion and submission of assessments.

Whilst we understand that there may be times when conflicting priorities make participation challenging, for you to gain the most from this module it is recommended that you participate in all scheduled live classes and complete your self-directed learning activities in a timely manner.

It may be difficult to pass the assessment associated with this module if you are not regularly engaging with the module work and live classes. We may reach out to check how things are going and offer support if we observe that you have not been attending sessions or completing online activities.

This module has a practical element as part of the Royal Society of Biology accreditation, which must be attended.

Equality and Diversity

The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code.

In line with current legislation (Equality Act, 2010) and the UWS Equality, Diversity, and Human Rights Code, our modules are accessible and inclusive, with reasonable adjustment for different needs where appropriate. Module materials comply with University guidance on inclusive learning and teaching, and specialist assistive equipment, support provision and adjustment to assessment practice will be made in accordance with UWS policy and

regulations. Where modules require practical and/or laboratory based learning or assessment required to meet accrediting body requirements the University will make reasonable adjustment such as adjustable height benches or assistance of a 'buddy' or helper.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Biological Sciences Health**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☒ **Yes** ☐ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Biology
Moderator	Richard Thacker
External Examiner	J Spicer
Accreditation Details	IBMS/ HCPC/ RSB
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	3

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Class test (written)
Assessment 2
Essay
Assessment 3
Clinical/ Fieldwork/ Practical skills assessment/Debate/ Interview/ Viva voce/ Oral
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Class test (written)	☒	☒	☒	☐	☐	50	3

Component 2

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
Essay	☒	☒	☒	☐	☐	45	0

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Clinical/ Fieldwork/ Practical skills assessment/ Debate/ Interview/ Viva voce/ Oral	☐	☐	☐	☒	☐	5	2
Combined total for all components						100%	5 hours

Change Control

What	When	Who
Moderator change	30/01/26	R. Thacker