

University of the West of Scotland

Module Descriptor

Session: 2022/23

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Status: Published

Title of Module: Vertebrate Physiology

Code: BIOL08001	SCQF Level: 8 (Scottish Credit and Qualifications Framework)	Credit Points: 20	ECTS: 10 (European Credit Transfer Scheme)
School:	School of 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

Face-To-Face	Blended	Fully Online	HybridC	HybridO	Work-based Learning
			✓		

Face-To-Face

Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.

Blended

A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered "blended" if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations

Fully Online

Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.

HybridC

Online with mandatory face-to-face learning on Campus

HybridO

Online with optional face-to-face learning on Campus

Work-based Learning

Learning activities where the main location for the learning experience is in the workplace.

Campus(es) for Module Delivery						
The module will normally be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)						
Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
			✓			

Term(s) for Module Delivery					
(Provided viable student numbers permit).					
Term 1	✓	Term 2		Term 3	

Learning Outcomes: (maximum of 5 statements)
On successful completion of this module the student will be able to:
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.

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 Level 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 Level 8. Manipulative skills using the microscope and scientific drawing, practical procedures through performing laboratory investigations and simple experiments.
Generic Cognitive skills	SCQF Level 8. 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 Level 8. Use data collected from laboratory experiments to analyse results and draw conclusions.
Autonomy, Accountability and Working with others	SCQF Level 8. Co-operate 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.

Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code:	Module Title:
	Other:	
Co-requisites	Module Code:	Module Title:

* Indicates that module descriptor is not published.

Learning and Teaching	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	Student Learning Hours (Normally totalling 200 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
	200 Hours Total

****Indicative Resources: (eg. Core text, journals, internet access)**

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

Either:

Kardong.K.V. (2018) Vertebrates: Comparative Anatomy, Function, Evolution. 8th Ed. McGraw-Hill
(Covers the whole subject well, but may be too advanced for students with limited background in biology)

OR

Hickman, C.P., Keen, S.L., Eisenhour, D.J., and Larson, A. (2020) Integrated Principles of Zoology. 18th Ed McGraw-Hill
(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)

Engagement Requirements

In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time. Please refer to the Academic Engagement Procedure at the following link: [Academic engagement procedure](#)

Where a module has Professional, Statutory or Regulatory Body requirements these will be listed here: Attendance at synchronous sessions (lectures, practicals, field trips and tutorials), completion of asynchronous activities and submission of assessments to meet the learning outcomes of the module. This module has a practical element as part of the Royal Society of Biology accreditation, which must be attended.

Supplemental Information

Programme Board	Biological Sciences and Health
Assessment Results (Pass/Fail)	No
Subject Panel	Biology L7-11
Moderator	Mhairi Alexander
External Examiner	J Spicer
Accreditation Details	This module is part of the BSc (Hons) Applied Bioscience, BSc (Hons) Applied Bioscience with Forensic Investigation and BSc (Hons) Applied Bioscience and Zoology programmes; accredited by Royal Society of Biology (RSB)
Changes/Version Number	2.15 Change made to update prerequisite module which was previously listed as Biodiversity but has changed to Diversity of Life. Also removed titles as requested. Accreditation statement updated For AY21-22 Subject Panel (SAB) updated to Biology L7-11, MM and EE updated

Assessment: (also refer to Assessment Outcomes Grids below)
Open book online exam (50%)
Coursework (45%)
Direct assessment of technical skills: Pass/Fail element which must be passed (5%)
(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 Handbook.)

Assessment Outcome Grids (Footnote A.)

Component 1						
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Class test (written)	✓	✓	✓		50	0

Component 2						
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Essay	✓	✓	✓		25	0
Laboratory/ Clinical/ Field notebook	✓	✓	✓		20	0

Component 3						
Assessment Type (Footnote B.)	Learning Outcome	Learning Outcome	Learning Outcome	Learning Outcome	Weighting (%) of	Timetabled Contact

	(1)	(2)	(3)	(4)	Assessment Element	Hours
Clinical/ Fieldwork/ Practical skills assessment/ Debate/ Interview/ Viva voce/ Oral				✓	5	2
Combined Total For All Components					100%	2 hours

Footnotes

- A. Referred to within Assessment Section above
 B. Identified in the Learning Outcome Section above

Note(s):

1. More than one assessment method can be used to assess individual learning outcomes.
2. Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note).
 This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

Equality and Diversity

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. In order to complete the module all students will be expected to undertake practical laboratory work and a field trip. Adapting exercises to accommodate special needs is usually possible.

Please refer to the UWS Equality and Diversity Policy at the following link:

[UWS Equality and Diversity Policy](#)

(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)