



## MODULE SPECIFICATION

Part 1: Information			
Module Title	Wildlife Ecology		
Module Code	USSK5H-30-2	Level	Level 5
For implementation from	2020-21		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Health & Applied Sciences	Field	Applied Sciences
Department	HAS Dept of Applied Sciences		
Module type:	Standard		
Pre-requisites	Life on Earth 2020-21		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p><b>Educational Aims:</b> See Learning Outcomes</p> <p><b>Outline Syllabus:</b> This module examines how plants and animals interact with each other and their environment.</p> <p>Plants and the environment:</p> <p>Photosynthesis:            The light reactions of photosynthesis and energising the biosphere.            Adaptations of basic C3 photosynthesis to extreme environments, e.g. C4 photosynthesis and Crassulacean Acid Metabolism.            Plant growth in increasing atmospheric CO2 concentrations.</p> <p>Nutrient acquisition by plants:            Plant growth in mineral-deficient environments, e.g. insectivorous plants, parasitic plants.            The role of symbioses with nitrogen-fixing microbes.            The importance of plant nutrition in supplying mineral nutrients to the biosphere.            The mechanism of selective nutrient accumulation.            The importance of anthropogenic nutrient enrichment to environmental change.</p>

## STUDENT AND ACADEMIC SERVICES

### Stress biology and responses in plants:

Introduction to stress biology.

Plant growth in a changing environment.

Plant responses to pests and disease.

Plants and changing temperature and water regimes.

### Animals and the environment:

#### Energy and metabolism:

The importance of warmth and food to animal survival.

Metabolic rate and how it varies with body size.

The physiological and behavioural adaptations that allow animals to survive low temperatures.

The role of hibernation and torpor as energy-saving strategies.

#### Temperature regulation:

Physiological and behavioural mechanisms that are used by invertebrates and vertebrate animals to control and maintain their body temperature.

The advantages and disadvantages of endothermy and exothermy.

Staying alive in hot environments.

Regulate body temperature and conserving water.

#### Locomotion:

The efficiency of locomotion.

The problems of swimming in water and flying in air.

Locomotion on land - climbing trees and running on open plains.

#### Reproductive strategies:

The range of different strategies used by animals to reproduce successfully.

Behaviour that helps ensure survival of their offspring.

To brood or broadcast.

R-selected and K-selected reproductive strategies adopted by different vertebrates.

#### Animal behaviour:

Communication and signals.

Biological Rhythms, circadian and circannual cycles.

Behavioural Ecology: habitat selection; cost benefit approaches – optimal foraging theory; sexual selection; social behaviour – altruistic behaviour and kin selection.

#### Biological interactions:

The interactions of wildlife within contrasting ecosystems e.g. temperate freshwater systems; tropical rain forests; coral reef systems.

Foodwebs, co-existing, symbioses, resource partitioning, defence mechanisms and survival.

**Teaching and Learning Methods:** A variety of learning approaches will be used. Taught sessions at UWE will utilise TEL where possible, to support pedagogy of Inductive Learning where the students will engage in facilitated activities such as lectorials, debates, case studies, problem based learning etc. Practical laboratory sessions will provide experience of techniques used in plant physiology and more widely in the life sciences. Field based practicals will support the lecture series and allow observation and recording of the physiology and behaviour of wildlife – with particular emphasis on animals held in Bristol Zoo. Wherever possible, audio recordings of lectorials will be made available on Blackboard to enhance learning and as revision material and re-enforces the role of technology in learning to students.

Practical, field and tutorial sessions will provide opportunities for data handling and interpretation, problem solving and discussions with academic staff. Lectorials will provide contexts and overviews of topics to guide student-centred learning. Wherever possible, lectorials are supplemented by audio-visual material (e.g. DVDs) showing specific examples of animal behaviour or plant physiology. Material from BBC natural history programmes and the Arkive database of images are especially valuable. Student learning will be supported with interactive

## STUDENT AND ACADEMIC SERVICES

revision material and practical workbooks and the University's E-Learning Environment, Blackboard.

Scheduled learning includes lectorials, laboratory practical classes and field-based practicals.

For 2020-21 all lectures, tutorials and some module specific practicals will move online as a result of Covid 19

Independent learning includes hours engaged with essential reading, assignment preparation and completion etc. These sessions constitute an average time per level.

### Part 3: Assessment

The Assessment Strategy has been designed to support and enhance the development of both subject-based and employability skills, whilst ensuring that the modules Learning Outcomes are attained, as described below.

The coursework comprises 2 elements. The first is a Practical Report which is based on the laboratory and field practical series. This report requires the detailed recording of data followed by analysis, interpretation and discussion of these data. The recording and analysis of laboratory/field data is a vital skill for biological students; consequently this assessment can be described as an assessment to enhance employability and learning.

The second element is a taxonomic collection. Students will be given advice on appropriate techniques for collecting, identifying and displaying their selected taxon. Through this assessment students will learn how to use taxonomic keys, many of which are now available online to identify organisms. The ability to identify organisms is a highly sought after graduate skill.

Component A is an online exam, with a 24 hour window for completion. This assessment will provide students with an opportunity to demonstrate both their knowledge on a broad range of topics and will test a range of the learning outcomes and provide a valuable learning experience through recalling and demonstrating knowledge which will be of benefit when progressing to final year modules.

Formative feedback is available to students throughout the module through group discussions, practical classes and in tutorials. Students are provided with formative feed-forward for their assessments through preparatory sessions and through the extensive support materials supplied through Blackboard.

First Sit Components	Final Assessment	Element weighting	Description
Report - Component B		25 %	Practical report
Practical Skills Assessment - Component B		25 %	Taxonomic collection
Examination (Online) - Component A	✓	50 %	Online examination (24 hours)
Resit Components	Final Assessment	Element weighting	Description
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Practical Skills Assessment - Component B		25 %	Taxonomic collection
Examination (Online) - Component A	✓	50 %	Online examination (24 hours)

STUDENT AND ACADEMIC SERVICES

<b>Part 4: Teaching and Learning Methods</b>																	
Learning Outcomes	<p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1"> <thead> <tr> <th style="text-align: left;"><b>Module Learning Outcomes</b></th> <th style="text-align: left;"><b>Reference</b></th> </tr> </thead> <tbody> <tr> <td>Comprehend the requirements for efficient photosynthesis and the mechanisms of nutrient acquisition by plants</td> <td>MO1</td> </tr> <tr> <td>Discuss how plants respond to selected external stimuli</td> <td>MO2</td> </tr> <tr> <td>Compare the energetic and metabolic requirements of animals in different environments</td> <td>MO3</td> </tr> <tr> <td>Discuss the physiological and ecological strategies adopted by animals living in different ecosystems</td> <td>MO4</td> </tr> <tr> <td>Discuss the common underlining principles that determine animal behaviour and describe the importance of principles of behavioural ecology to survival</td> <td>MO5</td> </tr> <tr> <td>Undertake practical work to record scientific data in the field or laboratory, and present, analyse and interpret these data</td> <td>MO6</td> </tr> <tr> <td>Demonstrate expertise in the collection of ecological data and the identification of organisms</td> <td>MO7</td> </tr> </tbody> </table>	<b>Module Learning Outcomes</b>	<b>Reference</b>	Comprehend the requirements for efficient photosynthesis and the mechanisms of nutrient acquisition by plants	MO1	Discuss how plants respond to selected external stimuli	MO2	Compare the energetic and metabolic requirements of animals in different environments	MO3	Discuss the physiological and ecological strategies adopted by animals living in different ecosystems	MO4	Discuss the common underlining principles that determine animal behaviour and describe the importance of principles of behavioural ecology to survival	MO5	Undertake practical work to record scientific data in the field or laboratory, and present, analyse and interpret these data	MO6	Demonstrate expertise in the collection of ecological data and the identification of organisms	MO7
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Reading List	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p><a href="https://uwe.rl.talis.com/modules/ussk5h-30-2.html">https://uwe.rl.talis.com/modules/ussk5h-30-2.html</a></p>																

**Part 5: Contributes Towards**

This module contributes towards the following programmes of study:

Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Zoo][4yrs] BSc (Hons) 2018-19  
Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2018-19  
Wildlife Ecology and Conservation Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2018-19  
Wildlife Ecology and Conservation Science {Foundation} [Sep][SW][Zoo][5yrs] BSc (Hons) 2018-19  
Biological Sciences {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2018-19  
Biological Sciences {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2018-19  
Biological Sciences {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2018-19  
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