

Module Specification

Module Title Module Code
Credit Value Level Mode of Delivery Semester A

Pre-requisite modules	Co-requisite modules	Overlapping modules
Physiology or Biomed. Phys. I		

1) Content Description

Provide a description of the module, as it will appear in the Module Directory and on the Student Information System (approx. 70-80 words).

The following themes will be covered in this module:

- 1). Animal phylogeny; Comparative anatomy and evolution of nervous systems
- 2). Molecular & cellular mechanisms of neuronal signalling (in particular voltage-gated and ligand-gated ion channels).
- 3). Invertebrates as model systems for understanding mechanisms of neural control of behaviour.
- 4). An introduction to comparative endocrinology, including the evolution and functions of neuropeptides as regulators of physiological and behavioural processes.
- 5). Comparative physiology of phototransduction and olfaction.
- 6). Comparative physiology of gas exchange.
- 7). Comparative physiology of circulatory systems
- 8). Comparative physiology of osmoregulation
- 9). Comparative physiology of excretion.

2) Module Aims

Specify the aims of the module, i.e. the broad educational purposes for offering this module.

The aim of this module is to provide a general introduction to comparative and integrative physiology. Core concepts will be the importance of animal phylogeny as a framework for understanding the evolution of physiological processes and the importance of non-mammalian animals as model systems in physiology. The module will build upon the basic principles of physiology that are taught in the first year (level 4) by taking a broader approach that recognises the need to study and understand physiological processes in a range of animal types. The module will provide students with level 5 education in a variety of selected topics in neurobiology, endocrinology and comparative physiology,

3) Learning Outcomes

Identify the learning outcomes for this module, i.e. knowledge, skills and attributes to be developed through completion of this module. Outcomes should be referenced to the relevant [QAA benchmark statements](#) and the [Framework for Higher Education Qualifications in England, Wales and Northern Ireland \(2008\)](#). The [SEEC Credit Level Descriptors for Further and Higher Education 2003](#) and [Queen Mary Statement of Graduate Attributes](#) should also be used as a guiding framework for curriculum design.

Academic Content:	
A1	Knowledge of animal phylogeny as a framework for understanding the evolution of physiological processes.
A2	Knowledge of the contribution of studies on non-mammalian animals to our knowledge and understanding of physiological processes; invertebrates as model systems in neurobiology.

A3	Knowledge of the anatomy and physiology of sensory systems, nervous systems and endocrine systems and how these systems mediate and control physiological processes and behaviour in a variety of animal types.
A4	Knowledge of the comparative physiology of gas exchange and circulatory systems
A5	Knowledge of the comparative physiology of osmoregulation and excretion

Disciplinary skills - able to:	
B1	Able to describe and understand physiological processes (from the molecular to the whole-animal levels) with a comparative and evolutionary perspective.
B2	Able to explain, with reference to specific examples, how research on non-mammalian animals as "model" systems has made fundamental contributions to our understanding of physiology and biology
B3	Able to demonstrate knowledge and understanding of the anatomy and physiology of nervous and endocrine systems in a variety of animal phyla. Able to discuss how nervous/endocrine systems control physiological and behavioural processes in animals from a range of phyla.
B4	Able to demonstrate knowledge and understanding of the anatomy and physiology of gas exchange systems, circulatory systems, osmoregulatory and excretory systems in a variety of animal phyla.

Attributes:	
C1	Confident in knowledge of animal phylogeny as a framework for comparative physiology
C2	Able to access and interpret information from primary sources (journal articles) in the field of comparative and integrative physiology.
C3	Able to effectively communicate in essays and lab reports knowledge and understanding of comparative and integrative physiology.
C4	Able to work both individually and in groups in a laboratory setting to acquire practical skills in comparative and integrative physiology (e.g. through use of computers, microscopy and

4) Reading List

Provide an indicative reading list for the module. This should include key texts and/or journals but **should not** be an exhaustive list of materials.

Recommended textbook: Animal Physiology by Hill, Wyse & Anderson (2012; third ed.) Sinauer

Other useful sources of relevant information:

1. Invertebrates (third edition) by Brusca et al. (2016) Sinauer; ISBN 9781605353753
2. Specialist journals in comparative physiology: e.g. Journal of Experimental Biology, Comparative Biochemistry & Physiology; Journal of Comparative Neurology; General & Comparative Endocrinology etc.

5) Teaching and Learning Profile

Provide details of the method of delivery (lectures, seminars, fieldwork, practical classes, etc.) used to enable the achievement of learning outcomes and an indicative number of hours for each activity to give an overall picture of the workload a student taking the module would be expected to undertake. This information will form the Key Information Set for each undergraduate programme and will be used to populate the KIS widget found on the QMUL programme information pages. More information can be found [online](#) about KIS. You may also wish to refer to the [QAA guidance on contact hours](#) when completing this section.

Activity Type	KIS Category	Time Spent (in hours)
Lecture	Scheduled	22
Practical Classes and Workshops	Scheduled	10
Total		32

Specify the total module notional study hours. This should be a total of the hours given for each activity. The notional study hours for each academic credit point is 10. A 15 credit point module therefore represents 150 notional study hours.

Activity Type	Total Time Spent (in hours)	Percentage of Time Spent
Scheduled learning and teaching	32	21.33
Placement	0	0
Independent Study	118	78.66
Total	150	100

Use the information provided in the box above to specify the total time spent and the percentage time spent in each category of teaching and learning activity.

6) Assessment Profile

Provide details of the assessment methods used to assess the achievement of learning outcomes.

Description of Assessment	Assessment Type	KIS Category	Duration/Length	Percentage Weighting	Final element of assessment	Qualifying Mark
Written Examination	Examination	Written Exam	2 Hours and 30 Minutes	75%	Yes	
Practical workshop 1	Report	Coursework		5%	No	
Practical workshop 2	Report	Coursework		5%	No	
Practical workshop 3	Report	Coursework		5%	No	
Online MCQ 1	Report	Coursework		5%	No	
Online MCQ 2	Report	Coursework		5%	No	

Final element of assessment: The assessment that takes place last. **There should normally be only one element of assessment marked as final unless two assessment or submission dates occur on the same day.**

Qualifying mark: A specified minimum mark that must be obtained in one or more elements of assessment in order to pass a module. **This is in addition to, and distinct from, the requirement to achieve a pass in the module mark to pass the module.**

Reassessment

Provide details of the reassessment methods used, specifying whether reassessment is either standard reassessment or synoptic reassessment.

- Standard Reassessment
 Synoptic Reassessment

Synoptic reassessment details (if you have indicated synoptic reassessment above, please give details)		
Brief Description of Assessment	Assessment Type	Duration/Length of Examination/ Coursework
Resit Examination	Written Exam	2 Hours and 30 Minutes

