Module Definition Form (MDF)

Module code: MOD002801	**Version:** 9 **Date Amended:** 06/Dec/2023

1. Module Title
The Physiology of Organ Systems (BMS)

2a. Module Leader
Francesca Panin

2b. School
School of Life Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
5

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	Biomedical Science, Bioscience, Life Sciences framework		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Centred around the concepts of homeostasis and the biology of disease, you will start with an introduction to the role of drugs and drug action, and their role in treating pathophysiology. You will then examine the cardiovascular system in detail, looking at normal functioning and control of the heart and circulatory system and differential supply of blood to the tissues. You will also study respiration and its control, in relation to gas exchange in lungs and tissues. The response of the body to physiological perturbations including altitude, diving, exercise and pregnancy will also be discussed. In addition you will look in detail at the brain and neurotransmitters, liver metabolism, and relationships between diet and risk of disease. We will also conduct a detailed examination of blood as a tissue, closely surveying both the cellular and plasma fractions, and the physiological responses to haemorrhage.

Throughout this module, you will receive an overview of normal integrated physiological processes which will then be contrasted with changes resulting from disease conditions. You will explore these effects using case studies and related discussions. You will develop a range of key skills in physiology by participating in practical sessions where you will collect a range of physiological data using yourselves as subjects. You will also develop your scientific writing skills through researching and critically reviewing literature on a relevant physiology subject matter, and communicating your findings. You will thus be well equipped to explore physiology and pathophysiology in a range of contexts, from pharmacology, pathology, medical fields, and biomedical science.

6b. Outline Content

- Pharmacology – molecules, pharmacodynamics and pharmacokinetics –
- Structure and function of the heart and generation of the heart beat –
- Neural and hormonal control of the heart beat and the cardiac cycle –
- Starling's Law and cardiac output -Peripheral circulation and blood pressure in both health and disease –
- Electrocardiograms and blood pressure monitoring in healthy and diseased states. –
- Respiratory exchange, function of haemoglobin in gaseous transport. –
- Control of respiration -Physiological adaptations to high altitude, diving, exercise and pregnancy –
- The brain – functional anatomy and neurotransmitters –
- Functions of the liver – energy metabolism, xenobiotic metabolism, bile production –
- reproductive science, including infertility and embryology
- Composition and role of blood, haemostasis and haemorrhage –
- Relationship between nutrition and disease

6c. Key Texts/Literature
The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources
Appropriately equipped laboratories for physiology practical sessions. Technical support

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	Discuss the physical principles and physiological mechanisms involved in a variety of key organs and systems
2	Knowledge and Understanding	Compare and contrast normal organ function with that when the system is stressed, such as with exercise, pregnancy, altitude, and dietary imbalance
3	Intellectual, practical, affective and transferrable skills	Access and evaluate knowledge of the physiology and pathophysiology of human organ systems and communicate information effectively in a way that is well-organised, topical and shows awareness of the limits of current hypotheses
4	Intellectual, practical, affective and transferrable skills	Demonstrate laboratory skills and appropriate practical physiology techniques, including data collection, analysis and interpretation

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	27	1-3	9 x 3hr lectures with case studies
Other teacher managed learning	9	4	1 x 3 hour practical + 1 x 3 hrs computer workshop + 3 hrs revision
Student managed learning	114	1-4	Background reading, online activities, preparation for lectures and practicals, and completion of assessments
TOTAL:	150		

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	40 (%)
Coursework 1500 words group poster (40% Qualifying Mark as stipulated by the IBMS)					

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Examination Cambridge	1-4	50 (%)	Fine Grade	40 (%)
Exam (1 hour 30 Minutes) (40% Qualifying Mark as stipulated by the IBMS)					

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]