

Module code: MOD008111	Version: 4 Date Amended: 18/May/2023
-------------------------------	--

1. Module Title
Physics for Life Sciences

2a. Module Leader
Alexander Hassan

2b. School
SE: ARU College

2c. Faculty
Faculty of Science and Engineering

3a. Level
3

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions			
Type	Module Code	Module Name	Condition
Pre-requisite:	MOD008106	Maths for Scientists	Compulsory
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:			

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

This module will introduce you to the principles and laws of physics which underpin all life sciences. You need no prior knowledge of physics, and the focus in this module will be on those aspects which are specific to the requirements in your future pathway. You will be taught with a mixture of lectures and online resources.

The module will encompass aspects such as how organisms move in relation to their environment; how they perceive their environment in terms of light and sound; how the physics of fluids and gasses affect the anatomy and physiology of organisms; how electricity is used to allow communication, how radioactivity impacts on organisms, and the applications of physics in modern medicine.

The practical aspect of this module will allow you to develop an understanding of how the theory taught in lectures is applied in practical situations.

This module will allow you to progress to their next level of study with a thorough grounding in aspects that are often considered to be challenging, but when understood, will allow you to appreciate fully how organisms interact with their environment, as determined by the fundamental laws of physics and chemistry.

6b. Outline Content

The Physics For Life Scientists content will include:

- Foundations of physics
- Motion
- Forces in action
- Work, energy and power
- Waves, optics and sound
- Physics of gasses and thermal properties
- Electricity, circuitry and power
- Quantum physics and circular motion
- Particle physics and gravitational fields
- Radioactivity and nuclear physics

6c. Key Texts/Literature

The reading list to support this module is available at: <https://readinglists.aru.ac.uk/>

6d. Specialist Learning Resources

None

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	Understand the basic principles of physics as applied to living organisms.
2	Knowledge and Understanding	Describe how the life sciences are underpinned by physical laws and concepts.
3	Intellectual, practical, affective and transferrable skills	Understand and perform simple practical techniques and relate these to the theory.
4	Intellectual, practical, affective and transferrable skills	Display and apply appropriate levels of numeracy in solving problems of physical principles in biology.

8a. Module Occurrence to which this MDF Refers				
Year	Occurrence	Period	Location	Mode of Delivery
2023/4	F01CAM	Trimester 1	ARU Cambridge Campus	Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	0	NA	NA
Other teacher managed learning	48	1-4	4 hours per week x 12 teaching weeks
Student managed learning	102	1-4	Pre and post session preparation, reading and research. Other tasks as detailed in Module guide
TOTAL:	150		

9. Assessment for the above Module Occurrence

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1 2 3 4	50 (%)	Fine Grade	30 (%)

Practical Worksheet (up to 1500 words)

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Coursework	1 2 3 4	50 (%)	Fine Grade	30 (%)

In-class Test (up-to 1.5 hours)

In order to pass this module, students are required to achieve an overall mark of 40%.

In addition, students are required to:

(a) achieve the qualifying mark for each element of fine graded assessment of as specified above

(b) pass any pass/fail elements