



Module Definition Form (MDF)

Module code: MOD005667	Version: 8 Date Amended: 13/Jun/2024
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1. Module Title
Mathematics for the Biosciences

2a. Module Leader
Jason Hodgson

2b. School
School of Life Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
4

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		
Courses to which this module is restricted:	BSc (Hons) Biomedical Sciences, FdSc and BSc (Hons) Bioscience		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Mathematics is an essential skill for any scientist. "Mathematics for the Biosciences" will provide you with the core mathematical skills required to perform tasks in experimental design, data collection and data interpretation. You will be taught via interactive lectures, tutorials and team-based learning activities to develop your skills, applying these to biomedical science case studies.

The subjects we will cover include arithmetic and algebra, scientific notation, moles, molarity and dilutions, handling data and data presentation, and basic statistical analyses. In addition, you will apply your skills to the scientific principles of reaction rates, equilibria and growth curves. You will develop numeracy and IT skills while completing activities using statistical packages for data analysis. You will also gain team-working and problem-solving skills through team based learning with interactive activities.

The skills you develop from this module will assist you in careers such as biomedical science, medical fields, laboratory-based scientific research, data science and analytical roles.

6b. Outline Content

- Arithmetic and Algebra
- Units and Conversions
- Scientific Notation
- Moles, Molarity and Dilutions
- Graphs and Data Handling
- Chemical Equilibria and Reaction Rates
- Growth Curves and Logarithms
- Statistics and Probability
- Generation, recording, collation and statistical packages for data analysis
- Applied Case Studies

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	Apply the rules of mathematical calculations within the topics of arithmetic, algebra, scientific notation and molarity
2	Knowledge and Understanding	Apply statistical and probability calculations and statistical tests used in biomedical science
3	Intellectual, practical, affective and transferrable skills	Examine data sets using various IT applications and statistical packages
4	Intellectual, practical, affective and transferrable skills	.Examine the use of statistics within published biomedical science case-studies

8a. Module Occurrence to which this MDF Refers				
Year	Occurrence	Period	Location	Mode of Delivery
2025/6	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	22	1-4	11 x 2hrs lectures/active learning
Other teacher managed learning	14	1-4	5 x 2 hr practicals + 1 x 1 hr introduction + 1 x 2hr revision + 1 hr test
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					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-4	60 (%)	Fine Grade	30 (%)
Coursework 2000 words (Multiphase, including in-class assessments and data analysis; in-class test)					

Assessment components for Element 010				
Component No.	Assessment Title	Submission Method	Weighting (%)	Components needed for Mark Calculation?
010/1	R Markdown Learning Activity 1	Canvas	25 (%)	All
010/2	R Markdown Learning Activity 2	Canvas	25 (%)	
010/3	In Class Test	Scheduled Activity: Timetabled assessment task	50 (%)	

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Coursework	1-3	40 (%)	Fine Grade	30 (%)
In-Class Test (1000 words)					

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]