Module Definition Form (MDF)

Module code: MOD002797	Version: 2 Date Amended: 03/Dec/2025

1. Module Title
Preparation for Research (BMS)

2a. Module Leader
Nicholas Pugh

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
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	Biomedical Science, Bioscience, Bioinformatics, Life Sciences framework		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

The scientific method and experimental design underpin every aspect of being a scientist. As individuals on a science-based degree course you are expected to develop your research and employability skills. This module is a critical part of your development as a scientist, providing an opportunity to develop the research skills that you will employ in your final year independent research project and beyond.

This module focuses on two key aspects of a successful final year project:

1. Creating an effective research proposal (which ensures that your project is feasible and well prepared).

2. Understanding the statistical tools available to you to interrogate scientific data effectively.

This module will be delivered through lectures and group-based sessions, which will help you to develop your skills in critical thinking and research design. Key functions of major statistical packages will also be taught through active participation in workshop style sessions. You will also get to know your final year project supervisor under whose guidance you will be designing your project.

6b. Outline Content

- Planning a research project
  - How to define a research question and the aims of research proposal
  - How to organise a project with respect to timelines, finances and expected outcomes
- Reviewing the literature
  - How to identify publications for consideration in a project
  - Develop a critical analysis of findings in a publication.
- Experimental design, data handling and data analysis
  - Consideration of the risks to prevent the successful completion of a project
- Health and safety assessment for the laboratory
  - Development of risk assessments and COSHH
- Ethics in research
  - Develop an understanding of the ARU policy on ethics for research projects
- Writing a research plan
  - Identify the key components of a research plan, including costing and timelines.
- How to write a research report
  - Identify the key criteria for a successful research report.
- Statistics in research
  - Develop key statistical methods employed in a research project.

6c. Key Texts/Literature

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

6d. Specialist Learning Resources

Software available via Computer Resources Centre: Rstudio; Jamovi; SPSS.

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	Explain the principles of good project management, including risk assessments, ethics, and integrity appropriate to scientific research.
2	Knowledge and Understanding	Examine scientific literature within a specific biomedical science research topic, to identify valid scientific research questions.
3	Intellectual, practical, affective and transferrable skills	Apply the principles of good research design, including choosing appropriate methods and completing risk assessments, ethics applications, timing plans and costing breakdowns, to complete a research proposal that addresses an identified scientific question.
4	Intellectual, practical, affective and transferrable skills	Identify types of data, select appropriate statistical tests, and use various statistical software packages to analyse, interpret and present data obtained from biomedical science related investigations.

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	33	1-4	11 x 3 hours lectures/active learning
Other teacher managed learning	3	3-4	1 hour in-class test 2 hours supervisor meetings
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	0 (%)	Pass/Fail	100 (%)
3 In-Class tests (3 x 10 minute quizzes)					

Assessment components for Element 010				
Component No.	**Assessment Title**	**Submission Method**	**Weighting (%)**	**Components needed for Mark Calculation?**
010/1	Risk Assessment Quiz	Scheduled Activity: Timetabled assessment task	33 (%)	All
010/2	Ethics Quiz	Scheduled Activity: Timetabled assessment task	33 (%)	
010/3	Research Integrity Quiz	Scheduled Activity: Timetabled assessment task	34 (%)	

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Coursework	2-4	100 (%)	Fine Grade	40 (%)
Research Proposal (1500 words) and Statistics Quiz (1 Hour Quiz)					

Assessment components for Element 011				
Component No.	**Assessment Title**	**Submission Method**	**Weighting (%)**	**Components needed for Mark Calculation?**
011/1	Statistical Quiz	Scheduled Activity: Timetabled assessment task	30 (%)	All
011/2	Research Proposal	Canvas	70 (%)	

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]