

Module Specification

Module Title	Research Methods and Communication	Module Code	BIO209				
Credit Value	15	Level	5	Mode of Delivery	On Campus	Semester	B

Pre-requisite modules	Co-requisite modules	Overlapping modules

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).

In this module we look at how to design experiments, how to analyse and present the data obtained and how to communicate those results to others. The lecture and workshop component includes the principles of experimental design, statistical analysis including t-tests, correlation and regression, ANOVA, ANCOVA and non-parametric tests and discussion of how to interpret and present data. The tutorial component consists of a series of writing exercises designed to teach how to structure an argument and how to communicate ideas effectively.

2) Module Aims

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

The aims of the module are to give students an understanding of the processes that are involved in "doing science": identifying questions, designing experiments to test those questions, analysing and interpreting the data arising from those experiments and communicating the results and conclusions to others.

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	Understand the principles of experimental design, including the importance of the independence of data, randomisation, the use of controls, blocking, factorial designs and controlling for covariates.
A2	Understand the use of statistics within the biological and chemical sciences; recognise different types of data structure and understand simple probability and sampling theory.
A3	Understand which statistical tests to apply to certain types of data, perform these statistical tests using computer software packages and interpret the results.
A4	Compose essays and reports presenting experimental results that critically evaluate the results in question and place the results in context with other research.

Disciplinary skills - able to:	
B1	Design experiments and critically evaluate experimental designs.
B2	Analyse data and draw appropriate inferences from it.
B3	Present data and communicate ideas effectively

Attributes:	
C1	Acquire and apply knowledge in a rigorous way.

C2	Use quantitative data confidently and competently.
C3	Produce analyses which are grounded in evidence.

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.

McKillup, S. 2011. Statistics Explained. 2nd Edition. Cambridge University Press
 Ruxton, G. & Colegrave, N. 2006. Experimental Design for the Life Sciences. 2nd Edit. OUP
 Quinn, G.P. & Keough, M.J. 2002. Experimental Design and Data Analysis for Biologists. CUP

Teaching and Learning Profile

Provide details of the method of delivery (lectures, seminars, fieldwork, lab work, 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.

<p><u>1. Student / lecturer interaction</u></p> <p>Specify details of the method of delivery e.g. lectures, seminars, fieldwork, lab work etc used to enable the achievement of the learning outcomes and an indicative number of hours for each activity</p>	<p>16 1-hour lectures</p> <p>4 3-hour workshops</p> <p>4 1-hour small group tutorials</p>
<p><u>2. Student independent learning time</u></p> <p>Specify an indicative number of independent hours of study a student undertaking this module would be expected to undertake.</p>	<p>118 hours independent study</p>
<p><u>1. + 2. Total module notional study hours</u></p> <p>Specify the total module notional study hours. This should be a total of the hours given in 1. and 2. The notional study hours for each academic credit point is 10. A 15 credit point module therefore represents 150 notional study hours.</p>	<p>150</p>

Assessment Profile

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

Brief Description of Assessment	Assessment Type	Duration / Length of Examination / Coursework	Percentage Weighting	Final element of assessment?	Qualifying Mark for Individual Assessment
Written examination	Examination	2 h 30 min	75	Yes	
Coursework	Coursework	2 h	25	No	

Mark Scheme/Qualifying Rules:

A module mark of 40% or above is required to pass this 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	Examination	2 h 30 m