

MD4A1-90 Integrated Science Research Project

23/24

Department

Warwick Medical School

Level

Taught Postgraduate Level

Module leader

Andrew McAinsh

Credit value

90

Module duration

30 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

The aim of this module is to provide students with professional research skills through an extended period of academic lab work that integrates different disciplines to solve a scientific problem.

Module aims

The module aims to enable students to perform original high quality research at the forefront of a field and be exposed to a cutting edge research environment.

To develop students' ability to produce and communicate a substantial, independent piece of work drawing on skills from at least two disciplines.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

To undertake a scientific research project in a laboratory environment incorporating the following

aspects:

- Experimental Design
- Execution of experimental protocols
- Keeping records of methods, data and other observations in laboratory notebooks
- Quantitative analysis of data
- Reporting and interpreting research data

Learning outcomes

By the end of the module, students should be able to:

- Independently formulate a scientific hypothesis and demonstrate advanced skills in designing, planning and executing experiments to test the hypothesis.
- Integrate methods and thinking from different disciplines as applied to their project work.
- Produce and communicate an extended critical appraisal of the current scientific literature to evaluate the limitations of research evidence
- Demonstrate advanced skills in data interpretation and critical appraisal to relate results to the scientific literature.
- Write in the format of an academic article for an appropriate scientific journal and present work orally in the format of a seminar-style presentation

Indicative reading list

Each project will focus on a different research question. Therefore, bibliography is not specified as it will depend on the topic and nature of the research project and will be guided by the allocated supervisor who will provide students with an appropriate list of reviews and original research manuscripts.

For general working in the lab we recommend reading:

At the Bench: A Laboratory Navigator, Updated Edition
By Kathy Barker, The Institute for Systems Biology, Seattle
© 2005 • 465 pp., illus., appendices, index
ISBN 978-087969708-2

Research element

interdisciplinary research

Interdisciplinary

projects seek to bring together skills, methods and/or ideas from different science disciplines to address a defined question.

Subject specific skills

Independently formulate a scientific hypothesis and demonstrate advanced skills in designing, planning and executing experiments to test the hypothesis.

Transferable skills

Integrate methods and thinking from different disciplines as applied to their project work.

Produce and communicate an extended critical appraisal of the current scientific literature to evaluate the limitations of research evidence.

Demonstrate advanced skills in data interpretation and critical appraisal to relate results to the scientific literature.

Write in the format of an academic article for an appropriate scientific journal and present work orally in the format of a seminar-style presentation

Study

Study time

Type	Required
Seminars	24 sessions of 1 hour (3%)
Project supervision	24 sessions of 1 hour (3%)
Supervised practical classes	(0%)
Private study	700 hours (78%)
Assessment	152 hours (17%)
Total	900 hours

Private study description

Private study is 852 hours including in-lab work, assessment preparation, writing dissertation, reading lab-based training (including health & safety, online training modules, equipment training).

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A1

	Weighting	Study time
INS Dissertation	60%	100 hours
Structured report of research conducted including Introduction, Materials and Methods, Results		

	Weighting	Study time
and Discussion sections.		
Oral Presentation	20%	51 hours
Students will make a 20 min presentation (15min + 5 min questions).		
Lab Performance	20%	1 hour
Assessment of lab performance by supervisor.		

Feedback on assessment

Students will be offered formative feedback from the laboratory supervisor throughout the project. The written dissertation, lab performance and oral presentation will be marked using standardised rubrics, which will provide feedback to the students (including individualised feedback) in line with WMS assessment criteria (including submission to Plagiarism software). Further verbal feedback will be available to students on request.

Availability

Courses

This module is Core for:

- Year 4 of UMDA-CF10 Undergraduate Integrated Natural Sciences (MSci)