MD4A1-90 Integrated Science Research Project

26/27

Department
Warwick Medical School
Level
Taught Postgraduate Level
Module leader
Timothy Saunders
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 disiplines 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

Reading lists can be found in Talis

Research element

The project must focus on addressing an unanswered question in the Natural Sciences.

All student will have a Warwick-based primary supervisor. During the course of the project, students may need to perform experiments/placements at an external institution as part of a collaboration. These should be limited to a defined duration, and strictly less than 10 weeks in total. An action plan of how the placement will fit around the student's taught modules must be submitted to the Course Director at least 12 weeks before the placement will occur. A risk assessment should be made by the project supervisor and provided to the Course Director at least 4 weeks before the placement occurs and signed by the student & supervisor. Associated costs (e.g. travel, accommodation, consumables) in excess of the allocated budget need to be covered by the supervisor's grant income. Students should not be paid (outside of reimbursement) for external work associated with their project. All work in external labs is in support of the work in the primary Warwick-based lab, and does not represent seperate 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

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Study

Study time

Type	Required
Seminars	3 sessions of 1 hour (0%)
Project supervision	24 sessions of 1 hour (3%)
Other activity	664 hours (74%)
Assessment	209 hours (23%)
Total	900 hours

Private study description

No private study requirements defined for this module.

Other activity description

Research in the host laboratory under the guidance of the project supervisor. This work contributes towards the lab performance grade.

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 A2

	Weighting	Study time	Eligible for self-certification
Assessment component			
INS Dissertation	60%	160 hours	No
Structured report of research conducted including Introduction, Matrials and Methods, Results and Discussion sections.			
Reassessment component is the same			
Assessment component			
Oral Presentation	20%	48 hours	No
Students will make a 20 min presentation (15min + 5 min questions).			
Reassessment component is the same			
Assessment component			
Lab Performance	20%	1 hour	No
Assessment of lab performace by supervisor.			
Reassessment component is the same			

Feedback on assessment

Students will be offered formative feedback from the laboratory supervisor throughout the project. The written dissertation. lab performace 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.

Students are provided with the rubric for how lab performance is assessed. They are taught about the importance of keeping an up-to-date lab book and other records to ensure they can evidence lab work.

The assessment is based on the 30-week project. In the case of failing this assessment, reassessment would involve collecting further evidence (lab books, written records, experimental data such as images, written reports from supervisor and other lab members who worked with the student). The lab performance cannot be "resat".

Where work is performed with an external partner, students will be required to provide evidence of lab work, including a dated lab book. In the case of reassessment, written reports will be requested from external providers. This requirement will be made clear to the external provider prior to the onset of the research project.

Availability

Courses

This module is Core for:

- Masters in Integrated science (MIntSci)