



PHYS7911

Physics and Astronomy Advanced Lab

Session 1, In person-scheduled-weekday, North Ryde 2023

School of Mathematical and Physical Sciences

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General Information

Unit convenor and teaching staff

Unit convener

Richard de Grijs

richard.de-grijs@mq.edu.au

12WW 521

Credit points

10

Prerequisites

Admission to MRes

Corequisites

Co-badged status

Unit description

This unit will provide students with a bespoke research-based learning path in physics and/or astronomy, tailored to the students' individual development needs. Students will complete a short research project within an active research group, mentored by unit staff as well as by research leaders. Students will write a formal report on their project, including reviewing relevant background literature and supporting theory.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: apply advanced research skills in an authentic context.

ULO2: use sophisticated instrumentation and/or software tools effectively.

ULO3: identify and articulate how a research project fits within the context of, and contributes to, a wider field of research.

ULO4: demonstrate an understanding of concepts and theory that underpin advanced devices and/or techniques.

ULO5: analyse, interpret and present new research results correctly and coherently, in accordance with discipline standards.

General Assessment Information

1. Marking rubric for the oral presentation

Content (60%) Important: Pitch your presentation to an audience of your peers, that is, to your classmates. This implies that anyone intelligent with a background in physics or astronomy should be able to follow your story without getting lost.

- Introduction makes the topic clear.
- Accurately explains the background, methodology and results for the project.
- Presents information in a logical sequence.
- Gives a conclusion summarising the main points of the presentation.

Presentation - visual aids (20%)

- Slides are informative with a well-balanced amount of text and visuals.
- Well polished slides with correct spelling, grammar and punctuation.

Presentation - delivery (20%)

- Speaks clearly and at an appropriate pace.
- Maintains good eye contact with audience.
- Responsive to audience questions.
- Keeps to time limits.

2. Marking rubric for the written report

Note, the "background report" and the "final report" are meant to represent a single submission, due at the same time. You are expected to compose a combined final report of up to 20 pages (maximum) that resembles a peer-reviewed article. Intermediate deadlines for report sections are provided on the iLearn pages. They are optional but will help you keep track of your progress and you will receive feedback from the unit convener.

Literature review (25%)

- Clearly reports key relevant achievements in the field
- Shows appropriate depth of understanding of relevance and interconnections
- Uses appropriate referencing (throughout)

Introduction and theory (25%)

- Clearly introduces the project goal/hypothesis
- Explains theoretical aspects and their relation to project work

Methods, results and analysis (40%)

- Clearly explains experimental plan/methods/approach
- Presents raw results with an appropriate recording of conditions/assumptions
- Analyses raw results to address project hypothesis/goal
- Presents results logically and in appropriate forms

Conclusions and outlook (10%)

- Draws clear conclusions drawn from the results and analysis
- Puts outcomes in context of past results
- Outlines future work

Late Assessment Submission Penalty

From 1 July 2022, Students enrolled in Session based units with written assessments will have the following late penalty applied. Please see <https://students.mq.edu.au/study/assessment-exams/assessments> for more information.

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11:55 pm. A 1-hour grace period is provided to students who experience a technical concern.

For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to submit an application for [Special Consideration](#).

In this unit, late submissions will accepted as follows:

- Final project report (which combines the project background report and the project report) – YES, Standard Late Penalty applies
- Oral presentation – NO, unless a Special Consideration is granted

Assessment Tasks

Name	Weighting	Hurdle	Due
Project report	35%	No	09/06/2023
Oral presentation	25%	No	05/05/2023
Project background report	40%	No	09/06/2023

Project report

Assessment Type ¹: Project

Indicative Time on Task ²: 21 hours

Due: **09/06/2023**

Weighting: **35%**

Formal report documenting their project work, including, data generated, analysis, and outcomes.

On successful completion you will be able to:

- apply advanced research skills in an authentic context.
- use sophisticated instrumentation and/or software tools effectively.
- demonstrate an understanding of concepts and theory that underpin advanced devices and/or techniques.
- analyse, interpret and present new research results correctly and coherently, in accordance with discipline standards.

Oral presentation

Assessment Type ¹: Presentation

Indicative Time on Task ²: 10 hours

Due: **05/05/2023**

Weighting: **25%**

Oral presentation to the cohort, describing the project aims, background, and progress so far.

On successful completion you will be able to:

- identify and articulate how a research project fits within the context of, and contributes to, a wider field of research.
- demonstrate an understanding of concepts and theory that underpin advanced devices and/or techniques.

Project background report

Assessment Type ¹: Report

Indicative Time on Task ²: 14 hours

Due: **09/06/2023**

Weighting: **40%**

Formal report documenting relevant background literature and supporting theory for the student project.

On successful completion you will be able to:

- identify and articulate how a research project fits within the context of, and contributes to, a wider field of research.

- demonstrate an understanding of concepts and theory that underpin advanced devices and/or techniques.

¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Students will need to liaise with their staff supervisors as regards the requirements for them to carry out their research projects successfully.

Project reports are expected to be written in LaTeX (although Word will be accepted); oral presentations are expected to use powerpoint slides or equivalent as supporting materials.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault

- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.