



MOLS8902

Molecular Sciences Research Experience

Session 2, Special circumstances 2021

Archive (Pre-2022) - Department of Molecular Sciences

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Session 2 Learning and Teaching Update

The decision has been made to conduct study online for the remainder of Session 2 for all units WITHOUT mandatory on-campus learning activities. Exams for Session 2 will also be online where possible to do so.

This is due to the extension of the lockdown orders and to provide certainty around arrangements for the remainder of Session 2. We hope to return to campus beyond Session 2 as soon as it is safe and appropriate to do so.

Some classes/teaching activities cannot be moved online and must be taught on campus. You should already know if you are in one of these classes/teaching activities and your unit convenor will provide you with more information via iLearn. If you want to confirm, see the list of [units with mandatory on-campus classes/teaching activities](#).

Visit the [MQ COVID-19 information page](#) for more detail.

General Information

Unit convenor and teaching staff

Paul Haynes

paul.haynes@mq.edu.au

Credit points

10

Prerequisites

(Admission to MRadiopharmSc or MBiotech or MScience Innovation in Chemistry and Biomolecular Sciences) and (40cp at 8000 level or above) and permission by special approval

Corequisites

Co-badged status

Unit description

This unit provides students the opportunity to undertake a research project/internship supervised by leaders in the area of molecular sciences or radiopharmaceutical science. Students will acquire research skills, including literature searching, project planning, experimental design, data analysis and scientific communication. Interested students meeting the eligibility criteria should discuss their research interests with the unit convenor.

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: Conduct research to solve problems in areas relevant to molecular sciences or radiopharmaceutical science.

ULO2: Use laboratory skills common in molecular sciences or radiopharmaceutical science and conduct laboratory work in a safe and responsible manner.

ULO3: Collect, record and critically interpret their research findings.

ULO4: Critically analyse and interpret published literature of relevance to their research.

ULO5: Communicate in written and oral format their research findings to scientific audiences.

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Seminar</u>	5%	No	Week13
<u>Research report</u>	95%	No	week 13
<u>Review and research plan</u>	0%	No	week 2 or earlier

Seminar

Assessment Type ¹: Presentation

Indicative Time on Task ²: 10 hours

Due: **Week13**

Weighting: **5%**

A 20-min seminar presentation to the Department will be scheduled during the exam week to give the student an opportunity to present research aims and outcomes.

On successful completion you will be able to:

- Communicate in written and oral format their research findings to scientific audiences.

Research report

Assessment Type ¹: Report

Indicative Time on Task ²: 40 hours

Due: **week 13**

Weighting: **95%**

The report will be examined by two examiners plus the supervisor. Format of the report is flexible, but will include the revised literature review suitable for a short report in thesis format.

On successful completion you will be able to:

- Conduct research to solve problems in areas relevant to molecular sciences or radiopharmaceutical science.
- Use laboratory skills common in molecular sciences or radiopharmaceutical science and conduct laboratory work in a safe and responsible manner.
- Collect, record and critically interpret their research findings.
- Critically analyse and interpret published literature of relevance to their research.
- Communicate in written and oral format their research findings to scientific audiences.

Review and research plan

Assessment Type ¹: Literature review

Indicative Time on Task ²: 30 hours

Due: **week 2 or earlier**

Weighting: **0%**

You will develop a literature review and research/internship plan for submission to your supervisor. Feedback will be given on the report by the supervisor.

On successful completion you will be able to:

- Critically analyse and interpret published literature of relevance to their research.

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

MOLS8902 Molecular Sciences Research Experience unit outline

MOLS8902 is a self-organised unit of independent study aimed at providing postgraduate students with substantial experience in a working research laboratory. This can be completed individually or in small groups of up to 3 students. Students need to be self-directed and independent in order to get the most out of this unit, including optimising their own timetable since there are no timetabled learning activities involved.

Students are expected to spend at least 150 hours completing the unit across the 13 weeks of semester. This equates to about 1.5 days a week in a laboratory.

Students can organise a research project ahead of time by approaching academic supervisors directly, but this is not essential. The unit convenor and program directors will help students organise for specific research projects which are available for completion, in various areas of interest to different students.

Most projects will be entirely laboratory-based, but it is possible for students and supervisors to agree on a project where there is some reading and research component.

MOLS8902 Research Experience Report Guidelines – 12th July 2021

In order to complete MOLS8902, you are required to write a major research report at the end of semester. This is similar to a practical report in other units, but substantially larger. It should be presented in the style of a manuscript suitable for submission to an appropriate peer reviewed journal in the field. You must state on the title page which journal you are preparing your report for submission to, and referencing must be in the format required by that journal.

The report should be prepared and submitted as a single PDF file, typed in 12-point font, double line spaced, with minimum 2 cm margins. The maximum allowable length for the entirety of sections 1 to 10 below is 40 pages; anything beyond that will not be marked. Page numbering must start at page 1 for the title page, and continue consecutively throughout.

An appendix is allowed if necessary, up to a maximum of 10 additional pages, for results and data tables, chemical structures, spectra, or other results. Anything larger than that should be stored in a publicly accessible online repository, and the reader should be referred to that via a link in the text.

References must be formatted consistently throughout. Tables and figures should be placed in the text where appropriate. Figures must have a legend, tables must have a title and can have footnotes if required.

The report will be submitted via a Turnitin link on the unit iLearn site.

The report must contain the following sections. Note that sections 2 and 3 would usually not be required when submitting a manuscript, but they should be included in this report. See the following sections below for explanatory notes on each.

1. Title page
2. Declaration
3. Table of contents
4. Abstract
5. Introduction
6. Materials and Methods
7. Results
8. Discussion
9. Conclusions and future directions
10. References

11. Personal Reflection statement
12. Data Appendix (if necessary)
13. Instructions to Authors

Additional Explanation:

1. Title Page

Must include the title of the project, the author's name, affiliations and student number, and a clear statement of which journal your report is formatted for submission to. For example, "This report is formatted for submission to Journal of Irreproducible Results".

The declaration can be included on the title page if necessary for space reasons.

2. Declaration

Include a declaration that the work is original and has not been copied from other sources except where acknowledged appropriately. If the work has been completed as a group research project, include the names of the other students involved. Include the name of the project academic supervisor and insert your hand-written signature which means you are signing that all of the above is true and correct.

3. Table of Contents

Include an accurate table of contents with subheadings and page numbers.

4. Abstract

The abstract must be on a separate page, 300 words maximum.

5. Introduction

Explain the background behind the research project, and explain why you chose to pursue this line of research. Include appropriate peer reviewed literature references. Typically, the last paragraph of the introduction makes a statement about what will be presented in the current study.

6. Materials and Methods

All materials and methods used must be described in sufficient detail to allow others to replicate your experiments.

7. Results

Include the results of the experiments performed as part of the research project. This may not necessarily include everything you did, because there might be unsuccessful experiments involved which do not add anything to the report. Tables are a useful way to present data.

8. Discussion

Discuss what the results you have presented actually mean in the wider context of the research field. This would typically include plenty of references to previous studies and how your results compare with those. The results and discussion sections can be combined, but it is usually easier for a student to write them separately.

9. Conclusions and Future directions

Summarise what conclusions can be drawn from the results you have presented. Include some suggestions for future research projects which could be undertaken by subsequent students.

10. References

Include an accurate, consistently formatted list of all the references referred to in the text. Focus on peer reviewed scientific literature, and avoid citing websites and textbooks wherever possible.

11. Personal Reflection Statement

In addition to the sections above, the student is required to submit a personal reflection statement on the research project as an appendix to the report. This should be a maximum of two pages and must cover areas including:

- What did you learn from the project?
- If you worked in a group, what did you learn specifically from research within the group context?
- What did you find most different about laboratory research as compared to other units?
- What do you think are the next logical steps to take to continue the work you have started?
- What other research skills do you think you still need to develop further?

12. Data Appendix

If necessary, the report can include an appendix of up to ten additional pages of data tables, chemical structures, spectra, or other relevant materials. This should not be used for figures which are integral to the text; it is intended for additional supporting material.

13. Instructions to Authors

The report must also include a copy of the 'Instructions to Authors' guidelines for the Journal that the submission is prepared for. This should typically only be a few pages long, and is required so that the markers can see that the report complies as much as possible with the formatting instructions and guidelines of the Journal.

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Unit Schedule

The final report submission date will be at the end of week 13, the last day of the teaching semester, or early the following week. This is necessary to allow time for report marking. This means that students will need to complete the research tasks several weeks before the end of semester, to allow enough time to write a major report. This needs to be planned well in advance, in consultation with the supervisor.

For second semester of 2021, in order to comply with government mandated restrictions in place due to the global COVID-19 pandemic, the departmental seminar presentation task will be waived. Students are encouraged to present a summary of their work at the end of semester at a research laboratory group meeting instead.

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](#)
- [Grade Appeal Policy](#)
- [Complaint Management 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

Student Support

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

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [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

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

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.