



# MOLS7910

## The Research Experience

Session 1, Weekday attendance, North Ryde 2021

*Archive (Pre-2022) - Department of Molecular Sciences*

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#### **Notice**

As part of [Phase 3 of our return to campus plan](#), most units will now run tutorials, seminars and other small group activities on campus, and most will keep an online version available to those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face activities for your unit, please go to [timetable viewer](#). To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

## General Information

Unit convenor and teaching staff Alison Rodger <a href="mailto:alison.rodger@mq.edu.au">alison.rodger@mq.edu.au</a>
Credit points 10
Prerequisites Admission to MRes and 40cp at 7000 level
Corequisites
Co-badged status
Unit description This unit is designed to provide hands-on experience by direct interface with molecular science underway in the Department of Chemistry and Biomolecular Sciences. Students will participate in the programs of two distinct research groups over the semester and navigate typical situations encountered as members of a scientific research team. They will engage in a range of pertinent laboratory activities, receive preparative training in advanced molecular techniques from research scientists, and attend team meetings at which experimental data are reviewed and research planning is encountered.

## 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:** Describe contemporary research practice through participation in several teams engaged in molecular science research
- ULO2:** Carry out a selection of advanced laboratory procedures, incorporating safe handling of materials (chemical or biological)
- ULO3:** Actively participate in data collection and report/reflect on experimental findings to the research team
- ULO4:** Maintain a daily record, to research-level standard, of laboratory work undertaken and results obtained

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Laboratory notebook A</a>	15%	No	Wednesday week 7
<a href="#">Supervisor A report</a>	20%	No	Friday week 7
<a href="#">Supervisor B Report</a>	20%	No	Friday week 13
<a href="#">Research presentation A</a>	15%	No	Friday, week 7
<a href="#">Research presentation B</a>	15%	No	Monday week 13
<a href="#">Laboratory notebook B</a>	15%	No	Wednesday week 13

### Laboratory notebook A

Assessment Type <sup>1</sup>: Lab book

Indicative Time on Task <sup>2</sup>: 4 hours

Due: **Wednesday week 7**

Weighting: **15%**

A notebook will be provided for the recording of your laboratory activities in a style appropriate to the relevant research discipline. A laboratory notebook forms the primary source of new experimental information and contributes to formal records maintained by a research team. Your lab notebook must be written up as experiments are set-up and progress, alongside your observations or insights. Each task and observation must be clearly dated, and reflection noted on the experimental result. The level of description should be sufficient to allow experiments to be replicated by another worker. The names and storage location of all data files and samples related to each experiment must be identified clearly. Your notebook must be certified on a weekly basis by your supervisor or a senior researcher in your team.

On successful completion you will be able to:

- Describe contemporary research practice through participation in several teams engaged in molecular science research
- Carry out a selection of advanced laboratory procedures, incorporating safe handling of materials (chemical or biological)
- Maintain a daily record, to research-level standard, of laboratory work undertaken and results obtained

## Supervisor A report

Assessment Type <sup>1</sup>: Practice-based task

Indicative Time on Task <sup>2</sup>: 0 hours

Due: **Friday week 7**

Weighting: **20%**

Your supervisor will report on your laboratory performance, technical competencies and degree of research engagement. Factors such as attention to detail, ability to learn new methods, and your contribution to experimental interpretation will be assessed.

On successful completion you will be able to:

- Describe contemporary research practice through participation in several teams engaged in molecular science research
- Carry out a selection of advanced laboratory procedures, incorporating safe handling of materials (chemical or biological)
- Actively participate in data collection and report/reflect on experimental findings to the research team

## Supervisor B Report

Assessment Type <sup>1</sup>: Practice-based task

Indicative Time on Task <sup>2</sup>: 0 hours

Due: **Friday week 13**

Weighting: **20%**

As for A, your supervisor will report on your laboratory experience

On successful completion you will be able to:

- Describe contemporary research practice through participation in several teams engaged in molecular science research
- Carry out a selection of advanced laboratory procedures, incorporating safe handling of materials (chemical or biological)
- Actively participate in data collection and report/reflect on experimental findings to the research team

## Research presentation A

Assessment Type <sup>1</sup>: Presentation

Indicative Time on Task <sup>2</sup>: 4 hours

Due: **Friday, week 7**

Weighting: **15%**

During your last week of placement, you will give a short presentation at a research team meeting outlining the experiments in which you were involved and some background literature. You will receive constructive feedback on your results or understanding. By attending group meetings throughout your research team visit, you will be exposed to examples of short presentations by other student researchers.

On successful completion you will be able to:

- Describe contemporary research practice through participation in several teams engaged in molecular science research
- Carry out a selection of advanced laboratory procedures, incorporating safe handling of materials (chemical or biological)
- Actively participate in data collection and report/reflect on experimental findings to the research team

## Research presentation B

Assessment Type <sup>1</sup>: Presentation

Indicative Time on Task <sup>2</sup>: 4 hours

Due: **Monday week 13**

Weighting: **15%**

As for A, during the last week of placement, you will give a short presentation at a research team meeting

On successful completion you will be able to:

- Describe contemporary research practice through participation in several teams engaged in molecular science research
- Carry out a selection of advanced laboratory procedures, incorporating safe handling of materials (chemical or biological)
- Actively participate in data collection and report/reflect on experimental findings to the

research team

## Laboratory notebook B

Assessment Type <sup>1</sup>: Lab book

Indicative Time on Task <sup>2</sup>: 4 hours

Due: **Wednesday week 13**

Weighting: **15%**

As for A, you will maintain a certified record of your laboratory activities

On successful completion you will be able to:

- Describe contemporary research practice through participation in several teams engaged in molecular science research
- Carry out a selection of advanced laboratory procedures, incorporating safe handling of materials (chemical or biological)
- Maintain a daily record, to research-level standard, of laboratory work undertaken and results obtained

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<sup>1</sup> 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.

<sup>2</sup> 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

This unit is designed to help you learn about the process of undertaking research - rather than simply techniques and methods for particular types of research. Molecular sciences research is invariably undertaken as part of a team and it is really important that you experience different team dynamics and practices before you become responsible for your own research project. You will be required to choose placements in two quite different types of research group. You will shadow one or more researchers and may also undertake research activities, depending on the nature of the work. This unit has only 3 timetabled sessions. In addition, we will arrange to meet towards the conclusion of each placement to share what has been learned about the people and processes of research. You will also give a short group seminar which will be assessed by your supervisor. The three timetabled sessions for this Unit are:

- Week 1: outline the Unit and discuss how to meet with potential group leaders
- Week 2: instruction in safety matters and Department familiarisation. Michelle Kang, Anthony Gurlica, and Andrew Piggott will join us to introduce respectively departmental administration, technical support and the importance of following safety protocols.
- Week 13: outline the organisation of your Y2 program as you continue in MRes

The key feature of this unit is that you need to organise, coordinate and drive it. It will not happen without your leadership!

The assessment will test your ability to communicate aspects of molecular science. The Laboratory Notebook will be undertaken in two different formats and the key assessment criteria is whether the marker can understand what was done in the laboratory sufficiently to repeat it. The seminar tests your higher level understanding of a research area. The supervisor assessment tests whether you have worked well with group members to understand an area of science.

## 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](mailto: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](http://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](mailto: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/](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.