



MOLS8903

Biotechnology Research Experience

Session 2, In person-scheduled-infrequent, North Ryde 2026

School of Natural Sciences

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General Information

Unit convenor and teaching staff

Unit Convenor

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Lecturer

Edward Archer

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Credit points

10

Prerequisites

Corequisites

Co-badged status

Unit description

This unit provides students with the opportunity to engage in a collaborative research project in a structured, group-based environment. Students will undertake self-directed research, making decisions collectively while developing a range of essential skills, including literature searching, project planning, experimental design, data analysis, and scientific communication. This hands-on experience will enable them to apply their knowledge to real-world problems in biotechnology, preparing them for future challenges in the field.

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 relevant to biotechnology.

ULO2: Apply a range of research techniques while adhering to safety and ethical standards.

ULO3: Collect, record, and critically interpret research data.

ULO4: Critically evaluate and interpret project-specific relevant published literature.

ULO5: Communicate research findings effectively through various formats, including

written reports, oral presentations, and visual media, to scientific and non-scientific audiences.

ULO6: Collaborate effectively within a team to develop and present comprehensive management, quality, and commercialisation strategies in a biotechnology context.

General Assessment Information

A. Assessment Release

- Seminar Presentation: specifications provided no later than 5th August, 2026
- Laboratory performance and skills evaluation: details to be released by 25th August, 2026
- Research report: details to be released by 20th October, 2026

B. Requirements to Pass this Unit

To pass this unit, you need to:

- Achieve a total mark equal to or greater than 50% across all assessments

C. Participation

We strongly encourage all students to actively participate in all workshops. Regular engagement is crucial for your success in this unit, as these activities provide opportunities to deepen your understanding of the material, collaborate with peers, and receive valuable feedback from instructors, to assist in completing the unit assessments. Your active participation not only enhances your own learning experience but also contributes to a vibrant and dynamic learning environment for everyone.

D. Late Assessment Submission Penalty

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark of the task) will be applied for each day a written report or presentation 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. The submission time for all uploaded assessments is **11:55 pm**. A 1-hour grace period will be provided to students who experience technical concerns. For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, please apply for [Special Consideration](#). For example, if the assignment is worth 8 marks (of the entire unit) and your submission is late by 19 hours (or 23 hours 59 minutes 59 seconds), 0.4 marks (5% of 8 marks) will be deducted. If your submission is late by 24 hours (or 47 hours 59 minutes 59 seconds), 0.8 marks (10% of 8 marks) will be deducted, and so on.

E. Assessments where Late Submissions will be accepted:

In this unit, late submissions will be accepted as follows:

SEMINAR PRESENTATION WITH SELF-REFLECTION - NO, unless Special Consideration is granted.

LABORATORY PERFORMANCE AND SKILLS EVALUATION - NO, unless Special Consideration is granted.

RESEARCH REPORT - NO, unless Special Consideration is granted.

F. Special Consideration

The Special Consideration Policy aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through <https://connect.mq.edu.au>.

Assessment Tasks

Name	Weighting	Hurdle	Due	Groupwork/Individual	Short Extension	AI Approach
Seminar Presentation with Self-Reflection	20%	No	25/08/2026	Individual and Group	No	Observed
Laboratory Performance and Skills Evaluation	30%	No	During the scheduled block practical (Mid-session break)	Individual and Group	No	Observed
Research Report	50%	No	05/11/2026	Individual	Yes	Open

Seminar Presentation with Self-Reflection

Assessment Type ¹: Presentation task

Indicative Time on Task ²: 10 hours

Due: **25/08/2026**

Weighting: **20%**

Groupwork/Individual: Individual and Group

Short extension ³: No

AI Approach: Observed

Your group will deliver a presentation on the group's research aims, methodology, and preliminary outcomes, receiving feedback from peers and supervisor. You will also submit a self-reflection on your progress, challenges and development of practical and problem-solving skills. Both will be submitted at the same time.

On successful completion you will be able to:

- Conduct research to solve problems relevant to biotechnology.
- Collect, record, and critically interpret research data.

- Communicate research findings effectively through various formats, including written reports, oral presentations, and visual media, to scientific and non-scientific audiences.
- Collaborate effectively within a team to develop and present comprehensive management, quality, and commercialisation strategies in a biotechnology context.

Laboratory Performance and Skills Evaluation

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 12 hours

Due: **During the scheduled block practical (Mid-session break)**

Weighting: **30%**

Groupwork/Individual: Individual and Group

Short extension ³: No

AI Approach: Observed

You will be assessed on practical laboratory skills through direct observation by the unit supervisor. Criteria include group work and management, experimental techniques, safety practices, data collection, and problem-solving.

On successful completion you will be able to:

- Conduct research to solve problems relevant to biotechnology.
- Apply a range of research techniques while adhering to safety and ethical standards.
- Collect, record, and critically interpret research data.
- Collaborate effectively within a team to develop and present comprehensive management, quality, and commercialisation strategies in a biotechnology context.

Research Report

Assessment Type ¹: Written Submission

Indicative Time on Task ²: 50 hours

Due: **05/11/2026**

Weighting: **50%**

Groupwork/Individual: Individual

Short extension ³: Yes

AI Approach: Open

You will submit a comprehensive research report formatted for a scientific journal, detailing the research question, methodology, results, and discussion. The report will be examined by two independent examiners to ensure rigorous evaluation.

On successful completion you will be able to:

- Conduct research to solve problems relevant to biotechnology.
- Collect, record, and critically interpret research data.

- Critically evaluate and interpret project-specific relevant published literature.
 - Communicate research findings effectively through various formats, including written reports, oral presentations, and visual media, to scientific and non-scientific audiences.
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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
- [Academic Success](#) 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.

³ An automatic short extension is available for some assessments. Apply through the [Service Connect Portal](#).

Delivery and Resources

MOLS8903 is delivered as a research-intensive unit that provides students with first-hand experience in an active research laboratory. Unlike traditional coursework units, it has no weekly lectures. Instead, students undertake a guided research project under the supervision of academic staff and research team members, allowing them to develop practical laboratory skills, critical thinking, teamwork, and scientific communication in a genuine research environment.

The unit consists of four interactive workshops and a one-week intensive laboratory placement.

- **Workshop 1** (Week 2) introduces students to the unit, research themes, project expectations, laboratory safety requirements, and research group allocations.
- **Workshop 2** (week 5) focuses on experimental design and research planning, with student groups presenting and discussing their proposed research protocols to commence the laboratory work.
- **Intensive Laboratory Block** (week 2 of the mid-session break) provides students with a full-time (9:00 am-5:00 pm) immersive research experience. Students will work alongside researchers in the School of Natural Sciences, learning laboratory techniques, collecting and analysing experimental data, maintaining laboratory records, and participating in day-to-day research activities. Laboratory performance and professional skills are assessed through direct observation during this period.
- **Workshop 3** (week 11) provides guidance on troubleshooting experimental challenges, data analysis, interpreting results, and preparing the final research report.
- **Workshop 4** (week 13) provides students with the opportunity to discuss their research findings, demonstrate their understanding of their project and its broader scientific

context, and seek feedback and clarification on the research report prior to submission.

Throughout the semester, students are expected to engage with the scientific literature relevant to their assigned project, maintain communication with their supervisors and research group, and undertake independent study to support the preparation of their assessments.

Methods of Communication

We will communicate with you via your university email and through announcements on iLearn. If you have queries for the unit convenor, you can:

- Post your question on the iLearn discussion board (preferred for general queries that may benefit other students)
- Send a private message to the unit convenor via iLearn

Please check your university email and iLearn regularly to ensure you do not miss important updates.

Learning Resources

As this unit is based on authentic research practice, there is **no prescribed textbook**.

Learning resources will be provided through iLearn and by individual research supervisors, and may include:

- Project-specific research protocols and laboratory manuals.
- Primary scientific literature and review articles relevant to each research project.
- Workshop materials, assessment information, and submission guidelines.
- Data analysis resources and software appropriate to the assigned project.
- Laboratory equipment and instrumentation available within the School of Natural Sciences research facilities.
- Guidance and mentoring from academic staff, research supervisors, research assistants, postgraduate researchers, and other members of the research team.

Students are expected to take responsibility for identifying and critically evaluating relevant scientific literature throughout their research project, reflecting the practices of professional researchers.

Technology Used and Required

You are expected to access the unit iLearn site regularly to download required materials (e.g. PDF files) and stay up to date with unit announcements. Important information may also be sent to your student email account, so please check your email frequently to ensure you do not miss any updates.

Unit iLearn Page

The URL of the MOLS8903 Biotechnology Research Experience iLearn site is: http://ilearn.mq.edu.au/unit_offerings/179237/unit_guide/print

[du.au/](http://my.mq.edu.au/)

You will be asked for a username and a password. Your username is your student MQ ID. Your MQ ID and password have been mailed to you by the University. If you have lost them, go to the student portal: <http://my.mq.edu.au>.

Unit Schedule

Week 1: There is no on-campus learning activity in week 1.

S2 Wk	Activity	Location	Assessments Due
2	Workshop 1 - Introduction to the Unit, research project and group allocations	4-Aug, Tuesday 1 - 4 pm; 14SCO T5 Lecture Theatre	-
5	Workshop 2 - Group presentation, discussing the Research protocol	25- Aug, Tuesday 1 - 4 pm; 14SCO T5 Lecture Theatre	Oral Presentation (20%) Due: 25-Aug
Mid-Session break; Week 2	Block Practical (5 full days)	28 Sep - 2 Oct, Monday-Friday, 9 am - 5 pm; 14EaR 130+150 Science Lab	Laboratory Performance and Skills Evaluation (30%) (Due 28 Sept - 2 Oct; direct observation in the practical class)
11	Workshop 3 - Troubleshooting and data analysis	20-Oct, Tuesday 1 - 4 pm; 14SCO T5 Lecture Theatre	-
13	Workshop 4 - Research Report discussion and feedback	3-Nov, Tuesday 1 - 4 pm; 14SCO T5 Lecture Theatre	Research Report (50%) Due: 5-Nov

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 connect.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/>

Academic Success

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

- [Ask a Study Coach](#)
- [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 the [Service Connect Portal](#), or contact [Service Connect](#).

IT Help

For help with University computer systems and technology, visit <https://students.mq.edu.au/support/technology/service-desk>.

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.

Changes from Previous Offering

This is the inaugural offering of MOLS8903. The unit has been newly designed to provide students with an authentic research experience through participation in active research projects within the School of Natural Sciences, supported by workshops, an intensive laboratory placement, and research-focused assessments. As this is the first offering, there are no changes from a previous iteration.

We value student feedback and use it to continually improve the learning experience. Students are encouraged to provide constructive feedback through the University student surveys, directly to the teaching staff, or via the FSE Student Experience & Feedback link on the iLearn page.

Unit information based on version 2026.03 of the [Handbook](#)