



CBMS785

Laboratory Skills for Molecular Science Research

S1 Day 2015

Dept of Chemistry & Biomolecular Sciences

Contents

<u>General Information</u>	2
<u>Learning Outcomes</u>	2
<u>Assessment Tasks</u>	3
<u>Delivery and Resources</u>	4
<u>Unit Schedule</u>	4
<u>Policies and Procedures</u>	5
<u>Graduate Capabilities</u>	6
<u>Changes from Previous Offering</u>	8

Disclaimer

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

General Information

Unit convenor and teaching staff

Louise Brown

louise.brown@mq.edu.au

Contact via Email

E8C 305

Tuesday to Friday

Credit points

4

Prerequisites

Admission to MRes

Corequisites

Co-badged status

Unit description

This unit will provide hands-on experience of several of the sophisticated technologies currently utilised in molecular science. Students will select a portfolio of techniques across chemistry, biochemistry, biophysics, genomics or microbiology, according to their discipline background and interest. Independent skills and technical competency in a minimum of three contemporary methodologies or instrumentation types will be developed through intensive practical sessions with Macquarie researchers. This is a skills-focused unit designed to practically enrich methods encountered from a more theoretical standpoint in other units.

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:

Develop practice and procedural knowledge in a range of advanced methods utilised in contemporary molecular research

Generate individual technical skills in sample handling and instrumentation relevant to the research (as distinct from classroom) setting

Execute independent analytical and critical skills required for scientific experimentation and research design

Practice communication and written analysis concerning experimental data gathered from a range of research technologies

Assessment Tasks

Name	Weighting	Due
<u>Module 1: Report</u>	33%	Week 6 (TBC)
<u>Module 2: Report</u>	33%	Week 10 (TBC)
<u>Module 3: Report</u>	34%	Week 13 (TBC)

Module 1: Report

Due: **Week 6 (TBC)**

Weighting: **33%**

Report, Standard Operating Procedure (SOP) or skills evaluation; as appropriate

On successful completion you will be able to:

- Develop practice and procedural knowledge in a range of advanced methods utilised in contemporary molecular research
- Generate individual technical skills in sample handling and instrumentation relevant to the research (as distinct from classroom) setting
- Execute independent analytical and critical skills required for scientific experimentation and research design
- Practice communication and written analysis concerning experimental data gathered from a range of research technologies

Module 2: Report

Due: **Week 10 (TBC)**

Weighting: **33%**

Report, Standard Operating Procedure (SOP) or skills evaluation; as appropriate

On successful completion you will be able to:

- Develop practice and procedural knowledge in a range of advanced methods utilised in contemporary molecular research
- Generate individual technical skills in sample handling and instrumentation relevant to the research (as distinct from classroom) setting
- Execute independent analytical and critical skills required for scientific experimentation

and research design

- Practice communication and written analysis concerning experimental data gathered from a range of research technologies

Module 3: Report

Due: **Week 13 (TBC)**

Weighting: **34%**

Report, Standard Operating Procedure (SOP) or skills evaluation; as appropriate

On successful completion you will be able to:

- Develop practice and procedural knowledge in a range of advanced methods utilised in contemporary molecular research
- Generate individual technical skills in sample handling and instrumentation relevant to the research (as distinct from classroom) setting
- Execute independent analytical and critical skills required for scientific experimentation and research design
- Practice communication and written analysis concerning experimental data gathered from a range of research technologies

Delivery and Resources

This unit will provide hands-on experience of several advanced and contemporary technologies and instrumentation currently used in molecular science. Students will select a portfolio of techniques across chemistry, biochemistry, biophysics, genomics, glycomics, proteomics or microbiology. Independent skills and technical competency in a minimum of three contemporary methodologies or instrumentation types will be developed through intensive practical sessions with Macquarie researchers. Each module is of 4 weeks in duration (weeks 2-5; weeks 6-9; weeks 10-13). This is a skills-focused unit designed to practically enrich methods encountered from a more theoretical standpoint in other units. Small student groups to be accommodated primarily in departmental research spaces to facilitate hands-on training. Requirements will vary according to student background and interests, with scheduling of tasks sometimes dependent on instrumental availability.

Technologies Used and Required: Specialist scientific equipment, computers and software will be made available to you under supervision, but you will require your own laptop with basic software installed to prepare your reports and presentation.

Unit Schedule

For detailed schedules and locations, you must consult the CBMS785 iLearn site.

The Unit will be generally structured as follows:

Week 1: Unit introduction; meet with unit convenor, notification of modules

Weeks 2-5: Module placement 1

Weeks 6-9: Module placement 2

Weeks 10-13: Module placement 3

Most modules will be scheduled across a 2-5 hour block, generally at the same time each week. However, some modules may be scheduled outside regular CBMS785 allocated time, dependent on availability of mentor and/or instrumentation. Modules may be scheduled anytime from 9-6pm, Monday to Friday.

Policies and Procedures

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

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, 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.

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 improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

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

IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.

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

Graduate Capabilities

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Execute independent analytical and critical skills required for scientific experimentation and research design
- Practice communication and written analysis concerning experimental data gathered from a range of research technologies

Assessment tasks

- Module 1: Report
- Module 2: Report
- Module 3: Report

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of

knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Develop practice and procedural knowledge in a range of advanced methods utilised in contemporary molecular research
- Generate individual technical skills in sample handling and instrumentation relevant to the research (as distinct from classroom) setting

Assessment tasks

- Module 1: Report
- Module 2: Report
- Module 3: Report

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Develop practice and procedural knowledge in a range of advanced methods utilised in contemporary molecular research
- Generate individual technical skills in sample handling and instrumentation relevant to the research (as distinct from classroom) setting
- Execute independent analytical and critical skills required for scientific experimentation and research design

Assessment tasks

- Module 1: Report
- Module 2: Report
- Module 3: Report

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and

problem solving.

This graduate capability is supported by:

Learning outcomes

- Develop practice and procedural knowledge in a range of advanced methods utilised in contemporary molecular research
- Generate individual technical skills in sample handling and instrumentation relevant to the research (as distinct from classroom) setting
- Execute independent analytical and critical skills required for scientific experimentation and research design

Assessment tasks

- Module 1: Report
- Module 2: Report
- Module 3: Report

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcome

- Practice communication and written analysis concerning experimental data gathered from a range of research technologies

Assessment tasks

- Module 1: Report
- Module 2: Report
- Module 3: Report

Changes from Previous Offering

This is a new unit for 2015