



CBMS700

Research Frontiers in Chemistry and Biomolecular Sciences

S1 Day 2015

Dept of Chemistry & Biomolecular Sciences

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General Information

Unit convenor and teaching staff

Unit Convenor

Bridget Mabbutt

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Credit points

4

Prerequisites

Admission to MRes

Corequisites

Co-badged status

Unit description

This unit is designed to engage students with those topics currently dominating the chemical and biomolecular sciences. It will expose students to current research questions across the range of the broad discipline. Activities are based on seminar attendance, as well as directed reading of research papers and the discussion and critiquing of research topics in written and seminar forms. Students will be guided to a range of readings that engage new directions of scientific thought and break-through methodologies, such as recent Nobel Prize-winning outcomes. This unit will allow students to reflect on current trends and to communicate changes underway.

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:

Engagement with highly advanced knowledge in molecular science through attendance at relevant research seminars

Development of critical skills concerning technology trends in contemporary molecular science research

Practice of a professional level of communication (written, verbal) to articulate cutting-edge achievements and the manner by which discoveries are being made in molecular

science

Assessment Tasks

Name	Weighting	Due
<u>Research seminar attendance</u>	10%	9June
<u>Technology review (draft)</u>	35%	7April
<u>Technology review (final)</u>	25%	11May
<u>Seminar reflection</u>	20%	3June
<u>Peer discussion</u>	10%	3June

Research seminar attendance

Due: **9June**

Weighting: **10%**

Departmental research seminars occur in CBMS on a weekly basis, in 2015 generally scheduled Tuesdays 1-2pm. This is a conventional forum by which visiting scientists formally convey their research findings to a peer audience, and research staff and students of the Department are expected to attend. Such seminars differ from more informal research presentations, such as given at research team meetings.

You will be required to attend a total of 10 seminars in the semester, usually of 1 hr duration, and confirm your attendance with sign-off from the day's seminar convenor. You are a guest at these formal settings in which researchers show respect and give full attention to the speaker: always arrive on time (space is limited) and do not leave the session until after questions are completed.

Should it be essential to leave the room before others, always do so quietly by a back door. Please make sure you turn your mobile phone off and leave it in your bag.

Research seminars held elsewhere in the University or across the Sydney region may be of direct relevance to your research interest, and you are certainly encouraged to include those in your attendance program, should they be formally endorsed by other organisations. Please seek permission from A/Prof. Mabbutt should you plan to include other types of seminar experiences in your attendance portfolio.

On successful completion you will be able to:

- Engagement with highly advanced knowledge in molecular science through attendance at relevant research seminars
- Development of critical skills concerning technology trends in contemporary molecular science research

Technology review (draft)

Due: **7April**

Weighting: **35%**

You will be supervised in readings concerning a selected technology currently having breakthrough impact within molecular science. The specific topic will be selected from a panel of new techniques offered to the 700-level class.

You will prepare a written review (2500 words) covering the molecular basis of this new technology, its development and recent application. The first version of this report will form the basis for a viva (~20 min) with your supervising academic.

Following your viva and feedback concerning your written report, you will re-submit an improved version of your review (see below).

The grade awarded will reflect the degree to which you demonstrate understanding of the molecular basis underlying the specific technology and your awareness of the scientific impact and potential demonstrated by its recent application

On successful completion you will be able to:

- Development of critical skills concerning technology trends in contemporary molecular science research
- Practice of a professional level of communication (written, verbal) to articulate cutting-edge achievements and the manner by which discoveries are being made in molecular science

Technology review (final)

Due: **11May**

Weighting: **25%**

In scientific research, most publications a result of collaborative writing. Thus it is normal to prepare several versions of a document, incorporating feedback and insight from fellow authors.

Following your viva and feedback concerning your written report, you will re-submit an improved version of your review.

The grade awarded will reflect the degree to which you made improvements in response to feedback provided.

On successful completion you will be able to:

- Development of critical skills concerning technology trends in contemporary molecular

science research

- Practice of a professional level of communication (written, verbal) to articulate cutting-edge achievements and the manner by which discoveries are being made in molecular science

Seminar reflection

Due: **3June**

Weighting: **20%**

A 10 min PowerPoint presentation will be delivered by each student to the CBMS700 peer group, highlighting and critiquing one research seminar attended during semester which proved to be of specific personal interest. Your talk will be followed by questions (~10 min) from your audience of moderators and fellow students.

By exploring the relevant primary literature, you will be expected to demonstrate insight into the concepts and findings presented by the seminar speaker. You will also be required to reflect on the impact the particular piece of research successfully brings to the molecular sciences.

Grading of this task will be determined by the critical depth and scientific understanding articulated in your reflection and answers to questions.

On successful completion you will be able to:

- Engagement with highly advanced knowledge in molecular science through attendance at relevant research seminars
- Practice of a professional level of communication (written, verbal) to articulate cutting-edge achievements and the manner by which discoveries are being made in molecular science

Peer discussion

Due: **3June**

Weighting: **10%**

You will act as Chair for one presentation delivered by a fellow student concerning a seminar they have attended. In this position, you are responsible for introducing the speaker, and to facilitate the discussion that follows, in a manner that brings out the strengths of the speaker's ideas.

All audience members in the class will be expected to participate in the questions and discussion concerning the innovative aspect of each seminar experience highlighted.

Your grade will reflect the degree to which you meaningfully contribute and bring insight to the seminar you chair, as well as to your contributions within peer-driven discussion following all talks.

On successful completion you will be able to:

- Practice of a professional level of communication (written, verbal) to articulate cutting-edge achievements and the manner by which discoveries are being made in molecular science

Delivery and Resources

Seminar attendance and critique

Departmental research seminars generally occur in CBMS on a weekly basis. Seminars within formal series such as these (sponsored within University/Medical Research Departments) serve as an excellent educational opportunity to become aware of areas of current research focus.

You must obtain record for a total of 10 seminar experiences by June 9. It is your responsibility to retain and collate sign-off on the Unit-approved class sheet as participation record. A printed card will be distributed to all students in Week 1.

Your presentation must focus on one selection from the 10 seminar experiences documented on your personal attendance record.

News of seminars on offer around Sydney and of relevance in the molecular sciences will be regularly placed on the iLearn site. You may wish to include seminars held in other university departments or Research Institutes, as well as those formally hosted in the metropolitan area by professional organisations such as Royal Australian Chemical Institute, Joint Microbiological Associations (JAMS) or the Sydney Protein Group.

Details concerning additional seminar series you may like to consider:

- Wednesday 1pm, Department of Biological Sciences (Macquarie): [//bio.mq.edu.au](http://bio.mq.edu.au)
- Wednesday 6pm, Joint Academic Microbiology Seminars (held at the Australian Museum, College St): [/www.jams.org.au](http://www.jams.org.au)
- Friday 12.00, School of Molecular Bioscience (University of Sydney): sydney.edu.au/science/molecular_bioscience/news_and_events/seminars.php
- Friday 3.30, School of Advanced Medicine (Macquarie): [//www.mq.edu.au/about_us/faculties_and_departments/faculty_of_human_sciences/asam/research/seminar_series/](http://www.mq.edu.au/about_us/faculties_and_departments/faculty_of_human_sciences/asam/research/seminar_series/)
- Sydney Protein Group (varied days): sydney.edu.au/science/molecular_bioscience/spg/

Technology essay and viva

As noted within the semester schedule above, once you have selected your technology topic, it is your responsibility to contact and arrange interviews and vivas with the relevant supervising academic.

Unit Schedule

This Unit consists of self-directed tasks, with formal classroom experience only occurring in the last week of semester. It is your responsibility to organise your work according to the following schedule:

Weeks 1 –12:

You will attend ~1 research seminar weekly as part of your research training in this Unit. Seminars will most likely be selected from the CBMS Research Seminar series at Macquarie, generally held on Tuesdays at 1pm, as advertised on the Departmental website. However, you are invited to attend other departmental/institutional research seminars that interest you.

Week 2:

You will be notified within iLearn of the panel of Molecular Science technology topics available in 2015 for review, together with supervisory staff associated with each topic. Once you have selected a specific topic, it is your responsibility to directly contact the supervising academic in Week 2 for direction concerning appropriate reading literature. You must compile a written critical review of background methodology and contemporary applications of this breakthrough technology (as detailed in assessment tasks).

Easter week (April7):

4pm deadline for submission of technology review to CBMS700 Unit Convenor, A/Prof. Mabbutt. Late submissions will be subject to penalty. Turnitin must be used for an electronic submission.

Week 7 or 8:

Viva concerning your technology topic with relevant supervising academic. It is your responsibility to arrange and schedule this interview in advance.

Week 10 (May11):

4pm deadline for submission of revised version of technology review to CBMS700 Unit Convenor, A/Prof. Mabbutt. Late submissions will be subject to penalty

Week13 (Jun3):

Student presentations and discussion sessions will be held within the timetabled Wednesday session, i.e. from 3 pm. Your contribution to peer discussion during this seminar session will be graded, as well as your own presentation, and role as Chair.

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

- Development of critical skills concerning technology trends in contemporary molecular science research
- Practice of a professional level of communication (written, verbal) to articulate cutting-edge achievements and the manner by which discoveries are being made in molecular science

Assessment tasks

- Research seminar attendance
- Technology review (draft)
- Technology review (final)
- Seminar reflection
- Peer discussion

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

- Engagement with highly advanced knowledge in molecular science through attendance at relevant research seminars
- Development of critical skills concerning technology trends in contemporary molecular science research

Assessment tasks

- Research seminar attendance
- Technology review (draft)

- Technology review (final)
- Seminar reflection

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

- Development of critical skills concerning technology trends in contemporary molecular science research
- Practice of a professional level of communication (written, verbal) to articulate cutting-edge achievements and the manner by which discoveries are being made in molecular science

Assessment tasks

- Research seminar attendance
- Technology review (draft)
- Technology review (final)
- Seminar reflection
- Peer discussion

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 outcome

- Engagement with highly advanced knowledge in molecular science through attendance at relevant research seminars

Assessment task

- Research seminar attendance

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 of a professional level of communication (written, verbal) to articulate cutting-edge achievements and the manner by which discoveries are being made in molecular science

Assessment tasks

- Technology review (draft)
- Technology review (final)
- Seminar reflection
- Peer discussion

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcome

- Engagement with highly advanced knowledge in molecular science through attendance at relevant research seminars

Assessment tasks

- Research seminar attendance
- Seminar reflection
- Peer discussion

Changes from Previous Offering

New for 2015

Weighting of the Technology Review task has been re-distributed across draft and final submission stages to give more emphasis to the final (polished) version, to encourage inclusion

of consultative feedback into the writing process of Masters students.