



CBMS881

Major Research Project in Biotechnology

S1 Day 2014

Chemistry and Biomolecular Sciences

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General Information

Unit convenor and teaching staff

Unit Convenor

Shoba Ranganathan

shoba.ranganathan@mq.edu.au

Contact via shoba.ranganathan@mq.edu.au

F7B 121

meeting confirmed by email

Credit points

16

Prerequisites

(Admission to MBiotech or MRadiopharmSc) and (16cp at 800 level or above with a GPA of 3.0) and permission of Executive Dean of Faculty

Corequisites

Co-badged status

Unit description

This is a one semester full-time research project supervised by academic staff in the area of biotechnology. Students aim to produce results suitable for publication in an academic journal. Availability of the unit is conditional upon the availability of suitable projects, and meeting academic performance prerequisites. Interested students should discuss their application 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:

CBMS881 will enable you to search the literature for publications in your research topic and to critique them

The unit trains you on how to plan a research project and to identify specific aims and effectively carry these out to achieve outcomes, within the stipulated time period. You may require additional training to use specialized laboratory equipment or techniques as required.

During the course of your research project, you will have address problems and find scientific solutions.

You will be able to carefully analyse the data collected during your research, using mathematical and statistical tools as required and present these as tables, graphs and figures in your report.

You will be able to submit the outcomes of the research carried out as a dissertation or as a manuscript-style report. The report covers an Introduction summarising background literature and the scope of the project, Materials and Methods, Results & Discussion, Conclusions and References including titles and full author listing of cited papers.

You are given the opportunity to present The outcomes of your research project as a brief scientific seminar. You can also provide a brief outline of any difficulties that you faced during the project that adversely affected the outcomes.

Assessment Tasks

Name	Weighting	Due
<u>Research Proposal</u>	0%	End of Academic week 1
<u>Report</u>	95%	1st day of Academic Week 13
<u>Seminar</u>	5%	Exam week 1 - tbc

Research Proposal

Due: **End of Academic week 1**

Weighting: **0%**

This is what you will develop for review with your supervisor.

On successful completion you will be able to:

- CBMS881 will enable you to search the literature for publications in your research topic and to critique them
- The unit trains you on how to plan a research project and to identify specific aims and effectively carry these out to achieve outcomes, within the stipulated time period. You may require additional training to use specialized laboratory equipment or techniques as required.

Report

Due: **1st day of Academic Week 13**

Weighting: **95%**

The **CBMS881 report** will be examined by **two examiners** at least one of whom should be external to the university. The **Supervisor** should contact potential examiners for their availability and provide their contact details to the unit coordinator at the beginning of Academic Week 11. The Supervisor will also email the unit coordinator a report of the student's progress, when the report is submitted.

The CBMS881 report can be submitted either as a **dissertation** (*Option 1*) or as a **scientific manuscript** suitable for publication (*Option 2*). Please discuss with your supervisor the most suitable format for your report.

Option 1: Research Report by Dissertation (a concise thesis)

Three typed copies of the dissertation should be provided to the CBMS Department secretary, each in spiral bound soft-cover form, printed on single-sided A4 pages.

Dissertations should not exceed 60 pages of doublespaced text (12 pt in a legible font).

A softcopy (PDF or MS Word) of the dissertation should also be emailed to the unit coordinator, to facilitate rapid assessment, especially by external examiners.

The following sections must be included in your dissertation:

1. A **cover page** giving the title of the project, your name and qualifications and stating "A dissertation submitted in partial fulfilment of the M. Biotech. degree"
2. A 300-word **abstract**
3. **Abbreviation list** specific to your work
4. **Introduction** summarising background literature and the scope of the project
5. **Materials and Methods**
6. **Results & Discussion** (together or as separate sections)
7. **Conclusions**
8. **References** including titles and full author listing of cited papers

Clarity of expression, presentation of results and their discussion and citation of relevant literature will be taken into account in the assessment. Figures and Tables as required to present your results are essential. Large amounts of data (verifying spectral data, computer programs, etc.) should be placed as Appendices to the dissertation.

The report will normally require considerable effort and should be developed during the course of the semester and completed in the last few weeks prior to submission.

The report should be certified as your own work by the supervisor. Please submit one copy of this certification page to the CBMS Department secretary, with your report copies.

Option 2: Research Report by Publication-style Manuscript

This is in the form of a manuscript suitable for submission to a leading international peer-reviewed publication in the area of your project. Your contribution must be sufficient to justify yourself as the first author of the paper, with the supervisor as corresponding author.

Three typed copies of the manuscript should be provided to the CBMS Department Secretary, each in spiral bound soft-cover form, printed on single-sided A4 pages. Manuscripts should be in doublespaced text (12 pt) and should adhere to the overall guidelines for authors set out by the selected journal. Page restrictions set by the journal can be exceeded, to a maximum of 20%, if justified.

A softcopy (PDF or MS Word) of the manuscript should also be emailed to the unit coordinator, to facilitate rapid assessment, especially by external examiners.

The following sections must be included in your manuscript:

- A **cover page** giving the title of the project, your name and qualifications and stating “A report submitted in partial fulfilment of the M. Biotech. Degree, for submission to ... (please provide the full name of the journal name here).
- A **manuscript** including the following general sections:
 1. A 300-word **Abstract**
 2. **Abbreviation list** specific to your work
 3. **Introduction** summarising background literature and the scope of the project
 4. **Materials and Methods**
 5. **Results & Discussion** (together or as separate sections)
 6. **Conclusions**
 7. **References** including titles and full author listing of cited papers

Clarity of expression, presentation of results and their discussion and citation of relevant literature will be taken into account in the assessment. Figures and Tables as required to present your results are essential. Large amounts of data such as spectral data or computer programs, should be placed as Additional or Supplementary material.

The report will normally require considerable effort and should be developed during the course of the work and completed in the last few weeks prior to submission.

The report should be certified as your own work by the supervisor. Please submit one copy of this certification page to the CBMS Department secretary, with your report copies.

On successful completion you will be able to:

- CBMS881 will enable you to search the literature for publications in your research topic and to critique them
- The unit trains you on how to plan a research project and to identify specific aims and effectively carry these out to achieve outcomes, within the stipulated time period. You may require additional training to use specialized laboratory equipment or techniques as required.
- During the course of your research project, you will have address problems and find

scientific solutions.

- You will be able to carefully analyse the data collected during your research, using mathematical and statistical tools as required and present these as tables, graphs and figures in your report.
- You will be able to submit the outcomes of the research carried out as a dissertation or as a manuscript-style report. The report covers an Introduction summarising background literature and the scope of the project, Materials and Methods, Results & Discussion, Conclusions and References including titles and full author listing of cited papers.

Seminar

Due: **Exam week 1 - tbc**

Weighting: **5%**

A 20-min seminar presentation to the Department will be scheduled during the exam week.

The marks of this component will be awarded by the internal examiner and the unit coordinator.

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faced during the project that adversely affected the outcomes.

Delivery and Resources

Delivery: This is a full-time unit one semester unit requiring at least 40 hours of work in a research lab under supervision.

Resources: IT facilities available in the research group, Department as well as the library will be available for literature review, word processing and data analysis. Additional facilities, such as access to specialist facilities or the use of specific instruments as required by the project will be organized by the supervisor.

Changes to the unit since 2013:

- 5% of the marks have been allocated to the seminar presentation.
- At least one examiner must be external to the university.

Unit Schedule

This unit requires at least 40 hours per week of work, in the research lab, under supervision. Normal working hours are Mon-Fri: 9 am - 5 pm. After hours lab work may be required as approved by the supervisor.

Lab safety induction must be undertaken **BEFORE** working in the research labs - contact your supervisor to organize this.

Learning and Teaching Activities

Overview

CBMS881 provides research training and preparation for students interested in pursuing a higher research degree.

Research work

You will undertake any safety and/or equipment training courses as required. You will undertake research work of at least 40 hours per week, in the research lab, under supervision. You will have to maintain a lab. book, where daily activities are recorded. You are also required to attend group meetings and/or seminars, as required by the supervisor. At the end of the semester, you are invited to present a short seminar, on the research work undertaken.

Report writing

The CBMS881 report can be submitted either as a dissertation or as a scientific manuscript suitable for publication. Please discuss the most suitable format for your report with your supervisor. Kindly be aware of the University's policy on information honesty, available from http://www.mq.edu.au/policy/docs/academic_honesty/policy.html.

Seminar

At the end of the semester, you are invited to present a short seminar, on the research work undertaken.

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/

The University declares that it is a ‘fundamental principle’ that “all staff and students act with integrity in the creation, development, application and use of ideas and information. This means that:

- all academic work claimed as original is the work of the author making the claim
- all academic collaborations are acknowledged
- academic work is not falsified in any way
- when the ideas of others are used, these ideas are acknowledged appropriately.

Specifically, the dissertation must be checked with anti-plagiarism software such as Turnitin before submission.

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 - 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

- CBMS881 will enable you to search the literature for publications in your research topic and to critique them
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- During the course of your research project, you will have address problems and find scientific solutions.

- You will be able to carefully analyse the data collected during your research, using mathematical and statistical tools as required and present these as tables, graphs and figures in your report.
- You will be able to submit the outcomes of the research carried out as a dissertation or as a manuscript-style report. The report covers an Introduction summarising background literature and the scope of the project, Materials and Methods, Results & Discussion, Conclusions and References including titles and full author listing of cited papers.
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Assessment tasks

- Research Proposal
- Report
- Seminar

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

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Assessment tasks

- Research Proposal
- Report
- Seminar

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

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Assessment tasks

- Report

- Seminar

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 outcomes

- CBMS881 will enable you to search the literature for publications in your research topic and to critique them
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Assessment tasks

- Research Proposal
- Report
- Seminar

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 outcomes

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Assessment tasks

- Report
- Seminar

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

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