

BIOM4951

Research Thesis A

Term 2, 2022



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Michael Stevens	thesis.biomedeng@unsw.edu.au			

School Contact Information

Student Services can be contacted via unsw.to/webforms.

Course Details

Units of Credit 4

Summary of the Course

The thesis provides an opportunity for you to bring together engineering principles learned over your previous years of study and apply these principles to innovatively solve problems such as the development of a specific design, process and/or the investigation of a hypothesis. Thesis projects are complex, open-ended problems that allow room for your creativity, and the acquisition, analysis and interpretation of results. There are multiple possible solutions or conclusions at the outset and sufficient complexity to require a degree of project planning. The thesis requires you to formulate problems in scientific or engineering terms, manage a technical project and find solutions by applying scientific and engineering methods. You will also develop your ability to work in a research and development environment. You must identify a supervisor and project prior to enrolling in this course.

Course Aims

The thesis provides an opportunity for the student to bring together engineering principles learned over their previous years of study and apply these principles to innovatively solve problems such as the development of a specific design, process and/or the investigation of a hypothesis. Thesis projects must be complex, open-ended problems that allow room for student creativity, and the acquisition, analysis and interpretation of results. There must be multiple possible solutions or conclusions at the outset and sufficient complexity to require a degree of project planning from the student. The thesis requires the student to formulate problems in engineering terms, manage an engineering project and find solutions by applying engineering methods. Students also develop their ability to work in a research and development environment.

Course Learning Outcomes

1. Develop a design or a process or investigate a hypothesis following industry and professional engineering standards.
2. Critically reflect on a specialist body of knowledge related to their thesis topic.
3. Apply scientific and engineering methods to solve an engineering problem.
4. Analyse data objectively using quantitative and mathematical methods.
5. Demonstrate oral and written communication in professional and lay domains.
6. Solve biomedical problems by applying CLOs 1-5.

Teaching Strategies

The course is taught as an individual research project, to develop a level of research skills and autonomy.

Additional Course Information

There is no official class time for this course. You must still ensure your **enrolment and registration** is up to date in your enrolment. Your face-to-face time needs to be organised with your supervisor, as you are expected to meet them at least once per week.

You must have selected a project before Week 0 of term. If you haven't done so already, please contact

the course coordinator.

Expectations of Students

- *Meet your supervisor regularly*
- *Complete all the assessments on time*

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Interim Report	10%	Monday Week 11	1, 2, 3, 4, 5, 6

Assessment 1: Interim Report

Submission notes: You must submit a draft of your Literature Review to Smarthinking, then submit your Smarthinking feedback to Moodle, prior to submission of your Interim Report

Due date: Monday Week 11

In thesis, there are three different assessment stages.

Thesis A: Interim Report (10%), Supervisor Checklist (SA/UN)

Thesis B: Progress Seminar and Reflection (10%)

Thesis C: Final report (65%), Participation (5%), Conference Presentation (10%)

Your objectives in Thesis A are

1. To build your knowledge base on your specific research topic.
2. Use that knowledge base to inform your specific project aims and methodology.
3. Complete preliminary work towards meeting the specific project aims.

To assess this, there are two assessment tasks for Thesis A.\

Interim report (10%)

1. Literature review or equivalent (50%)
 1. What is the problem to be solved, and its significance?
 2. Must include
 1. Brief background to project
 2. Summary of literature relevant to project
 3. Identification of "gaps" in the literature
 4. Problem Statement (informed by gaps in the literature)
 5. Hypothesis and aims
 6. Indicative length is 10-15 pages,
1. Project planning (20%)
 1. How will the student answer the research question in the given time using their available resources?
 2. Must include
 1. Proposed Solution/Experimental Methodology
 2. Detailed Thesis timeline – for next two terms
 1. Justification of time allocation for each task

3. Available resources identified
4. Required training and upskilling identified

1. Project Dependent Preparations (20%)

1. Can the student achieve the aims in the timeline? What progress has been made already?
2. Project specific, but may include
 1. Evidence of training on specific equipment
 2. Evidence of some upskilling in new software/methods
 3. Preliminary results
 4. Preliminary sketches
 5. Components/parts ordered
 6. Detailed budget of parts to be ordered
 7. Risk Assessment

1. Document presentation (10%)

1. Report layout
2. English skills – spelling, grammar
3. Data presentation (if applicable)
4. Clarity of writing
5. Citations consistent and correctly formatted

Note: For students intending to undertake Thesis B and C simultaneously in the second term (4+8 model), the Project Plan (Thesis A deliverable) should be of sufficient quality and depth to demonstrate capacity for the student to complete B & C concurrently.

Progress Checklist by Supervisor (SA/UN)

1. Feasibility of completion using 4+8 model - this only applies to students who wish to complete Thesis A, B and C over two terms.

This is not a Turnitin assignment

Additional details

You must submit a draft of your Literature Review to Smarthinking, then submit your Smarthinking feedback to Moodle, prior to submission of your Interim Report.

Required elements of the Interim Report.

1. Literature review or equivalent (50%)

1. What is the problem to be solved, and its significance?
2. Must include
 1. Brief background to project
 2. Summary of literature relevant to project
 3. Identification of “gaps” in the literature
 4. Problem Statement (informed by gaps in the literature)
 5. Hypothesis and aims
3. Indicative length is 10-15 pages,

2. Project planning (20%)
 1. How will the student answer the research question in the given time using their available resources?
 2. Must include
 1. Proposed Solution/Experimental Methodology
 2. Detailed Thesis timeline – for next two terms
 1. Justification of time allocation for each task
 3. Available resources identified
 4. Required training and upskilling identified
3. Project Dependent Preparations (20%)
 1. Can the student achieve the aims in the timeline? What progress has been made already?
 2. Project specific, but may include
 1. Evidence of training on specific equipment
 2. Evidence of some upskilling in new software/methods
 3. Preliminary results
 4. Preliminary sketches
 5. Components/parts ordered
 6. Detailed budget of parts to be ordered
 7. Risk Assessment
4. Document presentation (10%)
 1. Report layout
 2. English skills – spelling, grammar
 3. Data presentation (if applicable)
 4. Clarity of writing
 5. Citations consistent and correctly formatted

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Course Schedule

[View class timetable](#)

Timetable

Date	Type	Content
Week 1: 30 May - 3 June	Online Activity	Make sure you have been allocated a project and have emailed your supervisor to set up weekly meetings.
Week 4: 20 June - 24 June	Online Activity	Complete the Check-in Questionnaire, available on Teams, by Monday Week 5 11:59pm
Week 7: 11 July - 15 July	Homework	Please complete the Week 7 Check-in survey by Friday Week 7
Week 10: 1 August - 5 August	Assessment	Upload Smarthinking Feedback to Moodle by Monday Week 10 9pm
Study Week: 8 August - 11 August	Assessment	Upload Interim Report by Monday Week 11 11:59 pm

Resources

Prescribed Resources

Resources will be made available to help students guide them in their journey for Thesis A.

Extensions

You can apply for [special consideration](#) when illness or other circumstances interfere with your assessment performance.

Other applications for extension of submission of thesis reports (e.g. equipment breakdown, etc.):

1. Discuss the possibility of an extension with your supervisor first.
2. Requests can then be lodged by the student here <http://tinyurl.com/yy2jzpyv>. The supervisor will then receive an email asking them to approve, before it is escalated to the decision panel.
3. Request must be lodged by **Week 6** of term.
4. Panel decision will be made by end of **week 7**.
5. The decision will be made by a panel – consisting of the HoS (or their nominee), Thesis Coordinator, and 1 other person.
6. Students should be alerted to the fact that this is not guaranteed, and thus should not rely on getting an extension.
7. Typically, extensions are granted UP TO 3 weeks. The length of the extension needs to be requested and justified by the supervisor. Panel will decide the length of time granted.
- 8.

Procedure if you fail Thesis A, B or C

Fail in Thesis A (interim report mark < 50%) – must re-enrol in Thesis A again.

Fail in Thesis B (seminar mark < 50%) – must re-enrol in Thesis B again

Fail in Thesis C – Students have three options.

1. re-enrol for Thesis A, B and C again, new project and supervisor
2. re-enrol for Thesis C again, same project - needs consent of an appropriate supervisor & student
3. Student does further work, re-submits thesis after a max of 6 weeks. *Course* mark capped at 50%. If still not satisfactory, then needs to re-enrol.

This last option is only available if the original mark was ≥ 40 , OR if the student is in their last semester before graduation (regardless of the original mark).

Fail in Thesis B & C (when taken simultaneously) – Students must re-enrol in Thesis B again, and cannot concurrently enrol in C. They can then take Thesis C when Thesis B has been satisfactorily completed.

Industry Theses

We encourage students to seek partnerships with industry, so students can have a co-supervisor from

industry. However, if confidentiality is required, a confidential disclosure agreement (CDA) is obligatory. The agreement will protect the intellectual property rights of the industry partner, UNSW and the student. Students or academics are **not authorised** to sign confidential disclosure agreements on behalf of UNSW and are advised to talk to the course coordinator and UNSW legal office to arrange for drafting and signing of the confidential disclosure or research agreement.

To complete an industry-based thesis, you must complete the following steps:

1. Identify an industry supervisor and share with them these [guidelines](#).
2. Identify a [GSBmE Academic](#) who can be your academic supervisor.
3. Complete this [Industry thesis permission form](#) and make sure your industry supervisor AND your academic supervisor have signed the form.
4. Upload the signed form [here](#) (you may need to log in with your zID@ad.unsw.edu.au and zPass).

Late Procedure

In all cases, applications for late submission can be applied for BEFORE the due date. This is at the discretion of the thesis coordinator but should only be granted in exceptional circumstances. As per normal, students can also apply through myUNSW for special consideration.

For Thesis A, B or C, 5 marks will be deducted off the *thesis* for every day late. Penalty applies until the marks for the *course* decrease to 50, and further lateness does not result in failure of the *course*, but might be a failure of the thesis (weekends count as days).

Additional Support for Students

- The Current Students Gateway: <https://student.unsw.edu.au/>
- Academic Skills and Support: <https://student.unsw.edu.au/academic-skills>
- *Student Wellbeing, Health and Safety*: <https://student.unsw.edu.au/wellbeing>
- Disability Support Services: <https://student.unsw.edu.au/disability-services>
- UNSW IT Service Centre: <https://www.it.unsw.edu.au/students/index.html>

Recommended Resources

Not available

Course Evaluation and Development

Students will be given an opportunity to provide feedback via informal surveys throughout the term.

Submission of Assessment Tasks

Laboratory reports and major assignments will require a [Non Plagiarism Declaration Cover Sheet](#).

Assignments should be submitted on time. A daily penalty of 5% of the marks available for that assignment will apply for work received after the due date. Any assignment more than 5 days late will not be accepted. The only exemption will be when prior permission for late submission has been granted by the Course coordinator. Extensions will be granted only on medical or compassionate grounds under extreme circumstances.

Academic Honesty and Plagiarism

PLAGIARISM

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise will have their names entered on a plagiarism register and will be liable to disciplinary action, including exclusion from enrolment.

It is expected that all students must at all times submit their own work for assessment. Submitting the work or ideas of someone else without clearly acknowledging the source of borrowed material or ideas is plagiarism.

All assessments which you hand in must have a [Non Plagiarism Declaration Cover Sheet](#). This is for both individual and group work. Attach it to your assignment before submitting it to the Course Coordinator or at the School Office.

Plagiarism is the use of another person's work or ideas as if they were your own. When it is necessary or desirable to use other people's material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

<https://student.unsw.edu.au/plagiarism>

Academic Information

COURSE EVALUATION AND DEVELOPMENT

Student feedback has helped to shape and develop this course, including feedback obtained from on-line evaluations as part of UNSW's myExperience process. You are highly encouraged to complete such an on-line evaluation toward the end of Term. Feedback and suggestions provided will be important in improving the course for future students.

DATES TO NOTE

Refer to MyUNSW for Important Dates, available at:
<https://my.unsw.edu.au/student/resources/KeyDates.html>

ACADEMIC ADVICE

For information about:

- Notes on assessments and plagiarism,
- Special Considerations,
- School Student Ethics Officer, and
- BESS

refer to the School website available at
<http://www.engineering.unsw.edu.au/biomedical-engineering/>

Supplementary Examinations:

Supplementary Examinations for Term 2 2022 will be held on (TBC) should you be required to sit one.

This course outline sets out description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle should be consulted for the up to date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline (as updated in Moodle), the description in the Course Outline/Moodle applies.

Image Credit

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CRICOS

CRICOS Provider Code: 00098G

Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.