

# BIOM4952

Research Thesis B

Term 3, 2021



## Course Overview

### Staff Contact Details

#### Convenors

Name	Email	Availability	Location	Phone
Michael Stevens	<a href="mailto:thesis.biomedeng@unsw.edu.au">thesis.biomedeng@unsw.edu.au</a>	By Appointment		
Fatemeh Karimi	<a href="mailto:fatemeh.karimi@unsw.edu.au">fatemeh.karimi@unsw.edu.au</a>			

### School Contact Information

Student Services can be contacted via [unsw.to/webforms](https://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. To solve biomedical problems by applying CLO 1-5

### Teaching Strategies

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

Students in this cohort will complete their thesis over three terms (4+4+4) or over two terms (4+8). A summary of the assessment is as follows

**Thesis A:** It is intended that Thesis A cover the scoping, planning, and completing preparations for the project. Students must have completed this assessment and passed in order to enroll in BIOM4952. This course is worth 10% of your final thesis grade.

**Thesis B:** The primary intention behind Thesis B is to ensure students stay on track with their projects

and project work as they progress through the year. This subject is worth 10% of your final thesis grade. **Thesis C:** Thesis C continues the project work. The key deliverable is the Written Report, alongside a poster presentation. This subject is worth 80% of your final thesis grade

Upon successful completion of this course, your transcript will read E.C for BIOM4952 and BIOM4951.

Upon completion of Thesis C, the final grade will be calculated and reapplied to BIOM4951 and BIOM4952.

### **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.

## Assessment

Students in this cohort will complete their thesis over three terms (4+4+4) or over two terms (4+8). A summary of the assessment is as follows

**Thesis A:** It is intended that Thesis A cover the scoping, planning, and completing preparations for the project.

**Thesis B:** The primary intention behind Thesis B is to ensure students stay on track with their projects and project work as they progress through the year.

**Thesis C:** Thesis C continues the project work. The key deliverable is the Written Report, alongside a poster presentation.

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Seminar Progress Presentation	10%	Final week of term	1, 2, 3, 4, 5, 6

### Assessment 1: Seminar Progress Presentation

**Submission notes:** Students must nominate an assessor by Week 6. Students must arrange a time to complete the assessment with their supervisor and assessor.

**Due date:** Final week of term

- This seminar will be presented to the supervisor, their research team and an additional academic assessor. It will involve the student detailing the background, motivation for their work, progress completed so far and a critical reflection on their work.
- Students must organize a time with their supervisor and find second assessor.
- Students are responsible for sending out invites to supervisor and assessor.
- It will be presented online via Microsoft Teams or face to face (social distancing restrictions pending).
- For students doing 4+4+4, there is an expectation that the student will have preliminary results by this point, and seminar will be in Week 10.
- For students doing 4+8, the results should be almost finalised by this point, and the seminar will be held in Week 3 of the second term. This gives students the opportunity to revert to 4+4+4 prior to Census Date if their progress is deemed unsatisfactory.
- Note: You should discuss with your supervisor early in the second term to identify a suitable time to complete the assessment task.
- Length: 15 minutes Seminar + 5 minutes questions (total time 20 minutes)

### Assessment criteria

#### Marking rubric for Progress Seminar

Last Updated: 8 September 2021

Descriptor	Wt	Accomplished	Distinguished	Solid	Adequate	Deficient
Mark bands		85-100	80-84	65-74	50-64	0-49

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<b>Mark bands</b>		<b>85-100</b>	<b>80-84</b>	<b>65-74</b>	<b>50-64</b>	<b>0-49</b>
<b>Context of problem and underlying theory, outline of aim and methodology.</b>	5%	Highly challenging problem, require in-depth disciplinary knowledge, acquire new skills or interdisciplinary knowledge	Very challenging problem, require in-depth disciplinary knowledge and skills	Challenging problem, require a fair amount of disciplinary knowledge and skills	Straightforward, require only basic engineering skills to solve problem	Trivial or of sub-standard engineering value.
<b>Progress on project</b>	40%	Achievement is beyond expectations with respect to plan. If any complexities or challenges have been encountered, a plan for equivalent work has been developed with significant progress made. Highly detailed discussions on work completed. The student is clearly on track to demonstrate a sophisticated understanding of the meaning and implications of their research findings.	Highly satisfactory achievement against the plan. If complexities or challenges have been encountered, a plan for equivalent work has been developed with satisfactory progress made. Detailed discussions on the work completed. The student clearly on their way to demonstrating a good understanding of the meaning and implications of their research findings.	Mostly satisfactory achievement against the plan. If complexities have been encountered a plan for equivalent work has been developed and a good start has been made. Some discussion of the work completed. The student looks to be developing a reasonable understanding of the meaning of their research findings.	Marginal achievement compared to the plan. If complexities have been encountered a plan for equivalent work has been developed but with little progress. Only superficial discussions of the work completed. The student will probably be able to demonstrate some understanding of the meaning of their results.	Achievement is not satisfactory with respect to the plan. Little work has been done to address any complexities or challenges encountered. Little or no discussion of the work completed. It is unclear that the student understands what their results mean.
<b>Reflection on Progress</b>	15%	Compares and contrasts the thesis, with industrial and other academic	Compares and contrasts the thesis, with industrial and other academic	Compares and contrasts the thesis, with industrial and/or other academic	Compares and contrasts the thesis, with industrial or other academic	Identifies superficial connections between the thesis, and industrial or

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		experiences, illuminating the differences and similarities between them. The student also demonstrates deep understanding of their field(s) of study and broadening perspective through the research experience. Evaluates changes in learning through the thesis, recognizing complex contextual factors (e.g. works with ambiguity and risk, deals with frustration), demonstrating self-awareness, and envisions a future self or develops plans that build on the research experience.	experiences, illuminating the differences and similarities between them. The student also demonstrates a growing understanding of their field(s) of study and developing perspective through the research experience. Evaluates changes in learning through the thesis, through either recognizing complex contextual factors (e.g. works with ambiguity and risk, deals with frustration), demonstrating self-awareness, and/or envisioning a future self / developing plans that build on the research experience.	experiences, illuminating the differences and similarities between them. Evaluates changes in learning through the thesis, recognizing complex contextual factors (e.g. works with ambiguity and risk, deals with frustration).	experiences, inferring differences and similarities between them. Articulates strengths and challenges during the thesis, with contexts.	other academic experiences. Describes own performances during the thesis with general descriptors of success and failure at a superficial level.
<b>Revised project plan</b>	15 %	Highly thoughtful and incisive discussions on future project	Quality discussion of the future project plan and expected	Some discussions of future project plan and outcomes. A	Superficial discussion of future project plan &/or outcomes. A	Little or no discussion of future project plan or outcomes. No

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		plan and expected results. A reasonable strategy to ensure progress is stated, explained in detail and innovative.	results. A reasonable strategy to ensure progress is stated and explained in detail.	reasonable strategy to ensure progress is stated and briefly explained.	reasonable strategy to ensure progress is stated.	reasonable strategy to ensure progress in stated.
<b>Seminar Presentation :</b>  English usage, rate of speech and audibility, clarity of description and relevance, use of aids, platform manner, logical structure of the presentation.	15 %	Excellent, high impact, engaging, audience will long remember. Presentation structured logically. Clear and audible speech. Visual aids strongly complemented the oral dissemination.	Professional presentation; audience gets a clear understanding about the work. Structure was clear with some minor miscommunication either visually or orally. Speaker is relatively confident, with good eye contact.	Good storytelling with use of graphics, images, facts, data, etc. However, the slides may not complement the speech: the presenter may be reading the slides. There are some structural issues in the presentation, however the audience is still able to follow along. Makes an effort to engage the audience with eye contact.	Adequate, able to articulate the problem or concept involved in the work. Makes some effort with eye contact, however spends most of the time reading the slides. There may be structure issues in the presentation that makes it difficult to follow along. Presenter is not engaging.	Poor visual and oral dissemination; you are left unsure what the work is about.
<b>Q&amp;A</b>  Degree of competence in answering questions	10 %	In-depth flawless answers that demonstrate commanding knowledge of the subject	Able to answer questions easily and directly, almost flawless	Able to answer questions with only minor flaws; you are sure they have reasonably good understanding about their	Able to answer questions but there are flaws. Nevertheless, you are fairly sure they understand what they're	Unable to answer questions or attempt to answer but clearly doesn't really understand

Descriptor	W t	Accomplishe d	Distinguished	Solid	Adequate	Deficient
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				work	doing	

### Additional details

[Marking form \(Within UNSW\)](#)

[Marking form \(outside UNSW\)](#)

## Attendance Requirements

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

## Course Schedule

No lecture recordings available

[View class timetable](#)

## Timetable

Date	Type	Content
Week 7: 25 October - 29 October	Online Activity	Organise an Assessor for your seminar. The seminar will be marked by supervisor and assessor
Week 8: 1 November - 5 November	Online Activity	Organise a presentation time with your supervisor and assessor.
Study Week: 20 November - 25 November	Presentation	Upload a copy of your slides via the link on Teams, prior to your presentation
	Presentation	Present your seminar to your supervisor and assessor at the pre-arranged time and date.

## Resources

### Prescribed Resources

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

## 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 – must re-enrol in Thesis A again.**

**Fail in Thesis B (seminar mark – 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  $\geq 40$ , 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 based projects](#)

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

## Submission of Assessment Tasks

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

Late submissions will be penalised 10% of the mark for each calendar day late. If you foresee a problem in meeting the nominated submission date please contact the Course Convenor to make an appointment to discuss your situation as soon as possible.

## 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 3 2021 will be held on Monday 10th January – Friday 14th January (inclusive) should you be required to sit one.

### Image Credit

Synergies in Sound 2016

### 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.