BIOM4951

Research Thesis A

Term Three // 2020
Course Overview

Staff Contact Details

Convenors

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Availability</th>
<th>Location</th>
<th>Phone</th>
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</thead>
<tbody>
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<td><a href="mailto:thesis.biomedeng@unsw.edu.au">thesis.biomedeng@unsw.edu.au</a></td>
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</tbody>
</table>

Administrators

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Availability</th>
<th>Location</th>
<th>Phone</th>
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<tbody>
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School Contact Information

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

Credit Points 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 an technical project and find solutions by applying scientific and engineering methods. You will also develop their 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 Biomedical Engineering Research Thesis aims to analyse or solve biomedical problems by applying engineering techniques. Problems to be addressed relate to basic or applied biomedical research or development of medical devices, processes or software. The Research Thesis is obligatory for all students of the dual (formerly concurrent) Bachelor of Engineering/Master of Biomedical Engineering program, and is undertaken in years 4 and 5 of the degree.

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. Apply LOs 1-5 to solve a biomedical engineering problem.

Teaching Strategies

The student will rely on developing an independent and collaborative learning approach. Research questions are often open-ended and highly specialized, so the student will learn most by one-to-one mentoring provided by the supervisor and their research team.

You will learn most of your skills from PhDs and Post Docs in your lab. We encourage you to attend lab meetings to get and know lab personnel.

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 Tasks

<table>
<thead>
<tr>
<th>Assessment task</th>
<th>Weight</th>
<th>Due Date</th>
<th>Student Learning Outcomes Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis Interim Report</td>
<td>10%</td>
<td>Monday Week 11</td>
<td>1, 2, 3, 4, 5, 6</td>
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</table>

Assessment Details

Assessment 1: Thesis Interim Report

Start date: Not Applicable

Length: 15-20 pages

Details:

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.

TA1: Interim report (10%)

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.

TA2: Progress Checklist by Supervisor (SA/UN)

Additional details:

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

TA1: 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
   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

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.

TA2: Progress Checklist by Supervisor (SA/UN)

   1. Feasibility of completion using 4+8 model

Turnitin setting: This is not a Turnitin assignment
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 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 ≥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

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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.

**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/](https://student.unsw.edu.au/)
- Academic Skills and Support: [https://student.unsw.edu.au/academic-skills](https://student.unsw.edu.au/academic-skills)
- **Student Wellbeing, Health and Safety:** [https://student.unsw.edu.au/wellbeing](https://student.unsw.edu.au/wellbeing)
- UNSW IT Service Centre: [https://www.it.unsw.edu.au/students/index.html](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.

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 2020 will be held on Monday 11th January – Friday 15th 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.