BIOM9020 Masters Project (Half Time) - 2024

Published on the 12 May 2024

General Course Information

Course Code : BIOM9020
Year : 2024
Term : Term 2
Teaching Period : T2
Is a multi-term course? : No
Faculty : Faculty of Engineering
Academic Unit : Graduate School of Biomedical Engineering
Delivery Mode : Research
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate, Postgraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

The biomedical engineering masters project allows coursework masters students to experience research training either within the School or with collaborating institutions such as hospitals and CSIRO. These projects offer a distinctive chance for you to merge the engineering principles

you've acquired throughout your prior years of study, and apply these principles to address unresolved engineering challenges in the realm of human health. Projects are selected by the student in consultation with a supervisor conducting research in an area of interest to the student. If the research topic selected is external to the School/University, the student must arrange for an internal GSBmE co-supervisor/assessor.

BIOM9020 (6 UOC) is the first half of the 12 UOC research project. BIOM9021 (6 UOC) is the second half. Enrolment in these courses allows a student to undertake the equivalent of BIOM9914 Masters. Project over two terms. You must discuss the research project with your supervisor and get their approval prior to enrolling in this BIOM9020. Satisfactory performance in BIOM9020 will enable you to then complete BIOM9021. Candidates must contact the School for consent to enrol.

In Week 7 of each term eligible students should receive an email inviting them to view the Biomedical Engineering Projects database and select their project preferences. You should then identify potential projects and discuss these projects with potential supervisors prior to commencing this course. If you have not received a communication by Week 8 about project selection, then please reach out to the course coordinator for access to the Biomedical Engineering Projects database.

Course Aims

The biomedical engineering masters project aim to provide an opportunity for postgraduate coursework students to bring together engineering principles learned over their previous years of study and apply these principles to solve critical problems in engineering related to human health. Thesis projects aim provide an opportunity to conduct research and develop the students' ability to work within a research and development environment. Thesis projects must include 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. Thesis projects aim to improve the student's ability to formulate problems in engineering terms, manage an engineering project and find solutions by applying engineering methods. Thesis projects aim to up-skill the student's ability to communicate technical content effectively to a wide audience through the completion of interim report (BIOM9020), scientific manuscript (BIOM9021), and conference/industry night poster presentations (BIOM9021).

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Develop a design or a process or investigate a hypothesis following industry and professional engineering standards.
CLO2 : Critically reflect on a specialist body of knowledge related to their thesis topic.
CLO3 : Apply scientific and engineering methods to solve an engineering problem.
CLO4 : Analyse data objectively using quantitative and mathematical methods.
CLO5 : Demonstrate oral and written communication in professional and lay domains.
CLO6 : To solve biomedical problems by applying 1-5.

Course Learning Outcomes	Assessment Item
CLO1 : Develop a design or a process or investigate a hypothesis following industry and professional engineering standards.	• Interim Report
CLO2 : Critically reflect on a specialist body of knowledge related to their thesis topic.	• Interim Report
CLO3 : Apply scientific and engineering methods to solve an engineering problem.	• Interim Report
CLO4 : Analyse data objectively using quantitative and mathematical methods.	• Interim Report
CLO5 : Demonstrate oral and written communication in professional and lay domains.	• Interim Report
CLO6 : To solve biomedical problems by applying 1-5.	• Interim Report

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Interim Report Assessment Format: Individual	20%	

Assessment Details
Interim Report

<u>Assessment Overview</u>

Assessment Stages:

- BIOM9020 Interim Report (20%)
- BIOM9021 Scientific manuscript (70%) and Conference Poster Presentation (10%)

The Interim Report assessment is designed to ensure that you have planned your research project. It includes a review of the current literature and similar available technologies or solutions. It is designed to ensure that you have picked up enough background knowledge to ensure that you are conducting a novel and significant research project and have identified all the skills required to complete your project. As a guide, the total number of pages in your document should be more than 15 pages (12pt font and normal boarders) and you should cite more than 20 scientific papers, patents, database, or other existing works in the area. Your supervisor may have additional requirements, so check with them first.

Structure

Please note that this is a general structure, please check with your supervisor as they may have specific

requirements based on your project.

- Abstract
- Table of Contents
- Statement of Contribution
- Introduction (max 1 page)
- Aims
- Background
- Literature Review
- Hypotheses (if applicable)
- Research Plan
- Methodology
- Timeline
- Project Dependent Preparations

Interim Report Details

1. Literature review or equivalent (50%)

- What is the problem to be solved, and its significance?

- Must Include:
  - Brief background to project
  - Summary of literature relevant to project
  - Hypotheses (and/or gaps identified the knowledge)
  - Problem Statement (informed by gaps in the literature)
  - Hypothesis and aims

2. Project planning (20%)

- How will the student answer the research question in the given time using their available resources?
- Must include:
  - Proposed Solution/Experimental Methodology
  - Detailed Thesis timeline – for next two terms
  - Justification of time allocation for each task
  - Available resources identified
  - Required training and upskilling identified

3. Project Dependent Preparations (20%)

- Can the student achieve the aims in the timeline? What progress has been made already?
- Preparations will be project specific, but may include:
  - Evidence of training on specific equipment
  - Evidence of some up-skilling in new software/methods
  - Preliminary results
  - Preliminary sketches
  - Components/parts ordered
  - Detailed budget of parts to be ordered
  - Risk Assessment

4. Document presentation (10%)

- Report layout (including 12pt font and normal boarders)
- English skills – spelling, grammar
- Data presentation (if applicable)
- Clarity of writing Goldilocks style (convey meaning within page recommendations)
- Citations consistent and correctly formatted
- Scientific graph/diagram/table design and formatting

Use of Generative Artificial Intelligence (AI) and editing assistance in thesis projects

Editing assistance

For Biomedical Engineering Thesis projects, you may use standard editing and referencing software, (e.g. Microsoft Office suite, Grammarly, EndNote, etc). This does not need to be cited. You are also encouraged to use the UNSW approved online writing support platform Smart Thinking service, https://www.student.unsw.edu.au/smarthinking

Generative AI

As this assessment task involves some planning or creative processes, you are permitted to use software to assist you in the generation of initial ideas. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e. only occasional AI generated words or phrases may form part of your final submission. It is a good idea to keep copies of the initial prompts to show your lecturer if there is any uncertainty about the originality of your work. Use of generative AI must be cited. When writing you thesis project and thinking about how to make use generative AI tools you should strive to create an original master piece by drawing together the available information from a wide range of sources. It is expected that the final submission will be demonstrably greater than the sum of the contributing parts. You should also consider the new 2023 marking rubric whereby projects that do not demonstrate original contributions from the student or appear to rely heavily on generative AI or other tools will be marked in the lower bands for each category. User of generative AI must be cited as follows:

* To cite: OpenAI (Year Accessed). ChatGPT. "Copy of text used to generate the output", [date generated dd/mm/yyy], OpenAI. https://openai.com/models/chatgpt/

Please note that the outputs from these tools are not always accurate, appropriate, nor properly referenced. You should ensure that you have moderated and critically evaluated the outputs from generative AI tools and only use occasionally AI generated words or phrases in your submissions.

*** If the outputs of generative AI such as ChatGPT form a part of your submission and they are not cited or include complete sentences or paragraphs, it will be regarded as serious academic misconduct similar to plagiarism (coping work and then passing it of as your own work) and subject to the standard penalties, which may include 00FL, suspension and exclusion. ***

<u>Course Learning Outcomes</u>

- CLO1 : Develop a design or a process or investigate a hypothesis following industry and professional engineering standards.
- CLO2 : Critically reflect on a specialist body of knowledge related to their thesis topic.
- CLO3 : Apply scientific and engineering methods to solve an engineering problem.
- CLO4 : Analyse data objectively using quantitative and mathematical methods.

- CLO5 : Demonstrate oral and written communication in professional and lay domains.
- CLO6 : To solve biomedical problems by applying 1-5.

Assessment Length

15-30 pages total

Submission notes

The submission link will open in Moodle once the Smarthinking hurdle is completed

Hurdle rules

You must submit a draft of your Literature Review to Smarthinking (https://www.student.unsw.edu.au/smarthinking) then submit your Smarthinking feedback to Moodle, prior to submission of your Interim Report. Once you receive the smarthinking feedback, please upload this to Moodle, and the submission tool will open for you.

General Assessment Information

There are three assessment tasks across BIOM9020 and BIOM9021. In BIOM9020, you must complete an interim report including a literature review, which will be assessed by your supervisor (20%). In BIOM9021, you must submit your final scientific manuscript (70%) and a conference poster presentation during the Biomedical Engineering Project Showcase event in Week 8 (10%). The final grade for BIOM9021/BIOM9020 will be the weighted average of your assessments from BIOM9020 (20%) and BIOM9021 (80%). You will receive the same grade for both courses only upon completion of BIOM9021.Use of Generative Artificial Intelligence (AI) and editing assistance in thesis projectsEditing assistance

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Generative AI

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<u>Grading Basis</u>

Standard

Course Schedule

Attendance Requirements

There is no official class time for this course. 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 still ensure your enrolment and registration is up to date.

Course 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.):

Discuss the possibility of an extension with your supervisor first. 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. Request must be lodged by Week 6 of term. Panel decision will be made by end of week 7. The decision will be made by a panel – consisting of the HoS (or their nominee), Thesis Coordinator, and 1 other person. Students should be alerted to the fact that this is not guaranteed, and thus should not rely on getting an extension. 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.

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.

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 BIOM9020 and BIOM9021 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

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Matthew Brodie		Samuels Building 515c	Moodle/TEAMS Thesis Channel	by appointment	No	No
	Tianruo Guo		Samuels Building 515	Moodle/TEAMS Thesis Channel	by appointment	No	Yes

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit / Submit rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's Special Consideration page.

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- Attendance
- UNSW Email Address
- Special Consideration
- Exams
- Approved Calculators
- Academic Honesty and Plagiarism
- Equitable Learning Services

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

Note: This course outline sets out the 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 or your primary learning management system (LMS) 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/Moodle/LMS, the description in the Course Outline/ Moodle/LMS applies.

Academic Honesty and Plagarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism

in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

Engineering Student Support Services – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

Engineering Industrial Training – Industrial training questions

UNSW Study Abroad – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries e.g. admissions, fees, programs, credit

transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

School Contact Information

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