Faculty of Engineering
Graduate School of Biomedical Engineering
Thesis A, B and C
Term 1, 2019

Last Edited: January 31, 2019

Version Control

<table>
<thead>
<tr>
<th>Version</th>
<th>Changes</th>
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<tbody>
<tr>
<td>1.0</td>
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1 COURSE DETAILS

<table>
<thead>
<tr>
<th>Units of Credit</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>For students commencing Thesis A in T1 2019: Thesis A, B and C are over 3 consecutive terms (4 UoC per term, called 4+4+4 model). Students have the choice of completing Thesis B and C together in one term (4 UoC in first term, 8 UoC in next term, called 4+8 model). For students enrolled in Thesis B in T1 2019, who completed Thesis A in Semester 2 2018: Thesis B is 6 UoC over T1. Masters of Biomedical Engineering by Coursework (Masters Project, 6 UoC per term) is over 2 consecutive terms (BIOM9020/BIOM9021). Masters of Biomedical Engineering by Coursework (full time) is over 1 term (BIOM9914 Masters Project).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Coordinator</th>
<th>Michael Stevens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email:</td>
<td><a href="mailto:michael.stevens@unsw.edu.au">michael.stevens@unsw.edu.au</a></td>
</tr>
<tr>
<td>Office:</td>
<td>Lower Ground Samuels Building</td>
</tr>
<tr>
<td>Consultation Times:</td>
<td>By appointment</td>
</tr>
</tbody>
</table>

2 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 enough 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.

The Biomedical Engineering Research Thesis or Masters’ Project 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.

The Biomedical Engineering Masters Project is open to dual (formerly concurrent) degree students who have successfully completed Thesis A and B, or postgraduate students enrolled in the Masters of Biomedical Engineering by Coursework (Program code 8660).
3 COURSE LEARNING OUTCOMES*

At the conclusion of this course, students should be able to:

1. Develop a design or a process or investigate a hypothesis following industry and professional engineering standards. (7, 8, 9, 10)
2. Critically reflect on a specialist body of knowledge related to their thesis topic. (3)
3. Apply scientific and engineering methods to solve an engineering problem. (7)
4. Analyse data objectively using quantitative and mathematical methods. (2, 7, 8)
5. Demonstrate oral and written communication in professional and lay domains. (12)
6. To solve biomedical problems by applying 1-5.

*Mapping to Program Learning Outcomes in brackets.

4 BE (Hons) Program Learning Outcomes

1. Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.
2. Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.
3. In-depth understanding of specialist bodies of knowledge within the engineering discipline.
4. Discernment of knowledge development and research directions within the engineering discipline.
5. Knowledge of engineering design practice and contextual factors impacting the engineering discipline.
6. Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline.
7. Application of established engineering methods to complex engineering problem solving.
8. Fluent application of engineering techniques, tools and resources.
10. Application of systematic approaches to the conduct and management of engineering projects.
11. Ethical conduct and professional accountability.
12. Effective oral and written communication in professional and lay domains.
13. Creative, innovative and pro-active demeanour.
14. Professional use and management of information.
15. Orderly management of self, and professional conduct.
16. Effective team membership and team leadership.
5 INFORMATION ABOUT THE COURSE

5.1 New Undergraduate Thesis Structure for 3+
From Term 1, 2019 the Engineering thesis will be taken for the duration of three terms, as Thesis A, Thesis B and Thesis C. Each course will carry 4 Units of Credit (UoC) for a total of 12 UoC. The total UoC requirement remains unchanged from current. Students will have two options to take Thesis from 2019:

- Option 2: (4+8: 4 UoC in one term and 8 UoC in the following term): Students who demonstrate satisfactory progress in Thesis A may apply to their School to take a 4+8 UoC structure where both Thesis B and C are taken in the next single term of that year. Total of 12 UoC. This option is subject to having demonstrated satisfactory progress in Thesis A.

Students who do not maintain satisfactory performance in Option 2 will revert to Option 1 and take Thesis across three terms. Thesis A, Thesis B and Thesis C will run in every term (T1, T2 and T3).

Students who undertook Thesis A in Semester 2 2018 will be able to enrol into Thesis for T1 2019. This is the same Thesis B that you would ordinarily take if the calendar was not changing. This option ensures that students currently undergoing the thesis can complete it within the same amount of time a semester would currently afford you to do Thesis B. For these students, the final report and seminar (for Thesis B) will be held in Week 3 of Term 2 2019.

5.2 Presumed knowledge and skills
Students in the dual degree program enrol in a thesis after completion of 168 units of credit, usually in their 4th year. Masters’ Project students (BIOM9914, BIOM9020/1) should have a background in the relevant engineering discipline for their project. Undergraduate students who apply for a Masters’ Project should have a WAM of at least 65%. Their application for admission into BIOM9914, BIOM9020/1 should be approved by their thesis supervisor and supported by a project description.

5.3 How this course relates to other courses
For students enrolled in Thesis A or Masters’ Project (BIOM9020, BIOM9021 or BIOM9914) in T1 2019, all students enrolled in this course will complete the same assessment and be examined by the Graduate School of Biomedical Engineering (GSBmE), regardless of their undergraduate school.

For students enrolled in Thesis B (previously enrolled in Thesis A in Semester 2 2018), there are specific requirements of their undergraduate school that must be met. Students enrolled in Electrical Engineering and Telecommunications and Computer Science and Engineering will have their thesis examined within that school. For other undergraduate schools the final thesis will be examined by the GSBmE. Material Science, Mechanical Engineering, Mechatronic Engineering and Chemical Engineering students,
will be required to present their work in a seminar at the GSBmE in Week 3 of Term 2 2019. However, students from Bioinformatics, Software Engineering, Computer Science and Engineering, Electrical Engineering and Telecommunications, will present their work in a poster session by their respective schools.

5.4 Which course code should you enroll in?
Table 1 shows the course codes for enrolment in T1 2019. Please check these carefully and make sure you are enrolled correctly.

Table 1: Course codes for enrolment.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Course Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Thesis A</td>
<td>BIOM4951</td>
</tr>
<tr>
<td>(Note: If you are a Materials Science/Biomedical Engineering student, for 2019 ONLY you have the choice of enrolling in the BIOM thesis or the Materials Science Thesis).</td>
<td></td>
</tr>
<tr>
<td>Research Thesis B</td>
<td>BIOM5003</td>
</tr>
<tr>
<td>(for students previously enrolled in Thesis A in Semester 2 2018)</td>
<td></td>
</tr>
<tr>
<td>These codes are only for these students.</td>
<td>BIOM5911</td>
</tr>
<tr>
<td></td>
<td>BIOM5951</td>
</tr>
<tr>
<td></td>
<td>BIOM5932</td>
</tr>
<tr>
<td></td>
<td>BIOM5941</td>
</tr>
<tr>
<td></td>
<td>BIOM5961</td>
</tr>
<tr>
<td></td>
<td>BIOM5911</td>
</tr>
<tr>
<td>Research Thesis B</td>
<td>BIOM5911</td>
</tr>
<tr>
<td></td>
<td>BIOM5951</td>
</tr>
<tr>
<td></td>
<td>BIOM5932</td>
</tr>
<tr>
<td></td>
<td>BIOM5941</td>
</tr>
<tr>
<td></td>
<td>BIOM5961</td>
</tr>
<tr>
<td></td>
<td>BIOM5911</td>
</tr>
<tr>
<td>Masters’ Project Part 1</td>
<td>BIOM9020</td>
</tr>
<tr>
<td>Masters’ Project Part 2</td>
<td>BIOM9021</td>
</tr>
<tr>
<td>Masters’ Project (1 Term)</td>
<td>BIOM9914</td>
</tr>
</tbody>
</table>
6 FACULTY-WIDE UNDERGRADUATE THESIS RULES

• By default, students ordinarily take Thesis A, Thesis B and Thesis C in consecutive terms.
• The prerequisites for Thesis B and Thesis C are Thesis A and Thesis B, respectively.
• With School permission, students may take Thesis B and C together. This option should be limited only to students who can demonstrate the ability to progress. This will require a prerequisite waiver to waive the Thesis B requirement for Thesis C.
• Students must take Thesis courses in consecutive terms, unless exceptional circumstances are demonstrated by the student through the standard channels and accepted by the School.
• Students may not undertake Industrial Training while enrolled in Thesis A, B or C, unless exceptional circumstances are demonstrated by the student and accepted by the School.
• Students may enroll in up to and including 20 UoC while undertaking Thesis B & C together (i.e. 12 UoC of non-thesis courses and 8 UoC of Thesis B & C). While this is overloading and so requires manual enrolment, permission for that will be given automatically. Students who wish to enroll in 22 UoC or more while undertaking Thesis (i.e. 18 UoC of credit and 4 UoC of Thesis) will need to apply for and be approved to overload.
• Thesis A, B and C should be offered in every term. Exceptions may be granted with appropriate justification.
• Thesis A and B will initially carry a ‘satisfactory’ (EC grade) or ‘not satisfactory’ (EF grade). A student’s final Thesis mark for A, B and C will reflect the overall weighted percentage of marks achieved during all three courses once Thesis C is completed, and the earlier EC grades will be replaced with the final mark at that time.

7 TEACHING STRATEGIES

<table>
<thead>
<tr>
<th>Suggested approach to learning</th>
<th>The student will rely on developing an independent and collaborative learning approach. Research questions are often open-ended and highly specialised, 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.</th>
</tr>
</thead>
</table>

8 ASSESSMENT PROCEDURE – Thesis A 2019 Onwards (Undergraduate)

Note: Students should carefully note which tasks apply to them, and the dates in which assessment is due. **This description is for students enrolling in Thesis A in 2019. For students enrolled in Thesis B for T1 2019, please read Section 9.**

8.1 Undergraduate Thesis for T1 2019

Students in this cohort are enrolling in Thesis A in 2019 and 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.

Table 2 shows the assessment schedule over the three terms. These course assessments relate to the student’s research planning, conducting the research project and writing the thesis document, and disseminating the results in different forms.

Table 2: Assessment Schedule for 2019 Onwards

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Course Code</th>
<th>Task</th>
<th>Due Date</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Engineering Research Thesis A</td>
<td>BIOM4951</td>
<td>TA1: Interim report</td>
<td>Mon Week 11 T1 (29 April 2019)</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TA2: Progress Report Checklist</td>
<td>T1 (29 April 2019)</td>
<td></td>
</tr>
<tr>
<td>Biomedical Engineering Research Thesis B</td>
<td>BIOM4952</td>
<td>TB1: Progress Research Seminar</td>
<td>T2 Week 8 (4+4+4)</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T2 Week 3 (4+8)</td>
<td></td>
</tr>
<tr>
<td>Biomedical Engineering Research Thesis C</td>
<td>BIOM4953</td>
<td>TC1: Final Report</td>
<td>T3 Week 10 (4+4+4)</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T2 Week 10 (4+8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TC2: Poster Presentation</td>
<td>T3 Week 9</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T2 Week 9 (4+8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TC3: Participation</td>
<td>T3 Week 10</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T2 Week 10 (4+8)</td>
<td></td>
</tr>
</tbody>
</table>
8.2 Thesis A (BIOM4951)
There are two assessment tasks for Thesis A.

8.2.1 TA1: Interim report (10%)
1. Literature review or equivalent (50%)
   a. What is the problem to be solved, and its significance?
   b. Must include
      i. Brief background to project
      ii. Summary of literature relevant to project
      iii. Identification of “gaps” in the literature
      iv. Problem Statement (informed by gaps in the literature)
      v. Hypothesis and aims
   c. Indicative length is 10-15 pages,
2. Project planning (20%)
   a. How will the student answer the research question in the given time
      using their available resources?
   b. Must include
      i. Proposed Solution/Experimental Methodology
      ii. Detailed Thesis timeline – for next two terms
         1. Justification of time allocation for each task
      iii. Available resources identified
      iv. Required training and upskilling identified
3. Project Dependent Preparations (20%)
   a. Can the student achieve the aims in the timeline? What progress has been
      made already?
   b. Project specific, but may include
      i. Evidence of training on specific equipment
      ii. Evidence of some upskilling in new software/methods
      iii. Preliminary results
      iv. Preliminary sketches
      v. Components/parts ordered
      vi. Detailed budget of parts to be ordered
      vii. Risk Assessment
4. Document presentation (10%)
   a. Report layout
   b. English skills – spelling, grammar
   c. Data presentation (if applicable)
   d. Clarity of writing
   e. 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.

8.2.2 TA2: Progress Checklist by Supervisor (SA/UN)
1. Initiative and Engagement
   a. Intellectual contribution
2. Sustained activity throughout the term
   a. Attendance at lab meetings
3. Diligence and competence in performing the task
   a. Amount of work and engagement with problem
   b. Risk assessments complete (when relevant)
4. Feasibility of completion using 4+8 model

8.3 Thesis B (BIOM4952)
There is one assessment task for Thesis B.

8.3.1 TB1: Research Seminar (10%)
- 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 will be required to be present at the seminars of at least 3 other students.
- 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 8.
- 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 + 5 minutes questions

8.4 Thesis C (BIOM4953)
There are 3 assessment tasks for Thesis C.

8.4.1 TC1: Written report (65%)
1. Literature review/background and putting the results in context (20%)
2. Execution of the research project, quality of analysis, discussion of results (50%)
3. Conclusions and value added (20%)
4. Document presentation (10%)

8.4.2 TC2: Poster presentation (10%)
1. Students are required to present their poster at a Thesis Conference at the end of term. This is a good opportunity to present your work to senior academics and to industry.

8.4.3 TC3: Participation (5%)
1. Completion of Project Exit Form
2. Initiative and Engagement
   a. Intellectual contribution
3. Sustained activity throughout the term
   a. Attendance at lab meetings
4. Diligence and competence in performing the task
   a. Amount of work and engagement with problem
   b. Risk assessments complete (when relevant)
   c. Other project-specific evidence (e.g. lab book completion)
9 ASSESSMENT PROCEDURE – Students enrolled in Thesis B in T1 2019

Note: Students should carefully note which tasks apply to them, and the dates in which assessment is due. This description is for students enrolling in Thesis B in Term 1 2019. For students enrolled in Thesis A for T1 2019, please read Section 8.

Due to the implementation of the 3+ model, students enrolled in Thesis A in S2 2018 will enroll in Thesis B in T1 2019 using the older course codes, outlined in section 5.4. Table 3 shows the assessment procedure for these students only.

Note the due date for these students is Week 3 Term 2, to ensure students have 13 teaching weeks to complete the thesis.

Table 3: Assessment schedule for students enrolled in Thesis B in T1 2019 only

<table>
<thead>
<tr>
<th>Task</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB1: Written Report (80%)</td>
<td>Fri Week 3 T2 (21 June 2019)</td>
</tr>
<tr>
<td>TB2: Seminar Presentation (20%)</td>
<td>Fri Week 3 T2 (21 June 2019)</td>
</tr>
<tr>
<td>TB3: Poster Presentation at Industry night (SA/UN)</td>
<td>Week 2 2019(Date TBC)</td>
</tr>
</tbody>
</table>

9.1 Assessment Details

9.1.1 TB1: Written report (80%)
1. Literature review/background and putting the results in context (20%)
2. Execution of the research project, quality of analysis, discussion of results (50%)
3. Conclusions and value added (20%)
4. Document presentation (10%)

9.1.2 TB2: Seminar Presentation (20%)
1. Oral presentation is obligatory.
2. 15-minute presentation + 5 minutes of questions.

9.1.3 TB3: Poster presentation:
Students are required to present their poster at the annual Biomedical Engineering Industry Night, to be held in early May. This is a good opportunity to present your work to senior academics and to industry.
9.2 Schools responsible for Assessment (Thesis B Only)

For Thesis B in 2019 T1 only, the following schools are responsible for assessment and the seminar (Table 4). Please refer to the Undergraduate School Course Outline for further details.

Table 4: Schools Responsible for Thesis B administration

<table>
<thead>
<tr>
<th>Program</th>
<th>Reports and thesis</th>
<th>Seminar/Poster/Demo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical and Mechatronic Engineering</td>
<td></td>
<td>GSBME</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material Science and Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(12 unit project)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters’ Project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bioinformatics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Science and Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering and Telecommunications</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10 ASSESSMENT PROCEDURE: MASTERS’ PROJECT

Masters’ project assessment tasks are listed in Table 5.

Table 5: Assessment Tasks for Masters’ Project

<table>
<thead>
<tr>
<th>BIOM9020</th>
<th>BIOM9021 and BIOM9914</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>Due Date</td>
</tr>
</tbody>
</table>

10.1 BIOM9020 Assessment Details

10.1.1 MP1: Interim report (100%)

1. Reviewing the work of others (50%)
2. Articulating a research question and a plan (20%)
3. Project Dependent Preparations (20%)
4. Document presentation (10%)
10.2 BIOM9021 / BIOM9914 Assessment Details

10.2.1 MP2: Written report (100%)
1. Literature review/background and putting the results in context (20%)
2. Execution of the research project, quality of analysis, discussion of results (50%)
3. Conclusions and value added (20%)
4. Document presentation (10%)

11 ASSESSMENT DUE DATES FOR GSBME T1 2019

Table 6 summarises the assessment due dates for T1 2019

<table>
<thead>
<tr>
<th>Course</th>
<th>Assessment Item</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis A (BIOM9451)</td>
<td>Interim Report</td>
<td>Monday Week 11 (4pm)</td>
</tr>
<tr>
<td>Thesis B</td>
<td>Seminar</td>
<td>Friday Week 3 Term 2 2019 (timetable TBC)</td>
</tr>
<tr>
<td>Thesis B</td>
<td>Report</td>
<td>Friday Week 3 Term 2 2019 (4pm)</td>
</tr>
<tr>
<td>Thesis B</td>
<td>Poster</td>
<td>Week 2 Term 2 2019 (Date TBC)</td>
</tr>
<tr>
<td>Masters Project Part 1</td>
<td>Report</td>
<td>Monday Week 11 (4pm)</td>
</tr>
<tr>
<td>(BIOM 9020)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters Project Part 2</td>
<td>Report</td>
<td>Friday Week 10 (4pm)</td>
</tr>
</tbody>
</table>

Seminar for Thesis B GSBME will be held on Friday of Week 3, Term 2. The Seminar will be 20 minutes (15 minutes talk/5 minutes questions). The room location will be advised in Week 6 Term 1.
12 GUIDELINES FOR WRITING YOUR THESIS

The thesis content will be assessed according to the stated thesis aims which may be a) experimental or simulation based b) design or c) critical reviews. The assessment weightings are shown below. Please note that these are only assessment criteria. The thesis structure outline is entirely up to you as long as you clearly address the following:

1. **Introduction, background and aims**

   This will include i) the biomedical problems you are addressing and their relevance ii) past work addressing this problem and other relevant background information and iii) hypothesis and/or aims for this project.

2. **Methodology**

   a) Experimental or simulation based projects

   Detail the methods and techniques you used. Provide enough information so that others may replicate your methods. Explain how the methods were used to generate the data in this thesis. Provide statistical methods if they were used to analyse data. Briefly explain how the methods address the hypotheses or aims of this project.

   b) Design projects

   Detail the software, instrumentation and manufacturing methods that were used to create the design. Provide a specification for the devices or software, as well as the intended methods for testing how well the design meets the specification. Provide statistical methods if they were used to analyse design performance.

   c) Critical reviews

   Outline the methodology that was used to critically review the field of research e.g., databases, interviews, patent searches

   *Note: Sections 1 and 2 apply to both Interim Report and to Final Report.*

3. **Research Outcomes**

   a) Experimental or simulation based projects

   Provide a summary of your results including statistical analysis. Clearly explain how your results were obtained using experimental methods. You will also need to submit the raw data to your supervisors (lab books, data files, etc). Note that you can submit additional data files (200MB limit)

   b) Design projects

   Provide designs as well as experimental or simulated data that tests how well the design meets specification. Provide a summary of your results including statistical analysis. Clearly explain how your results were obtained using experimental methods. You will also need to submit the raw data to your supervisors (lab books, data files, etc.). Note that you can submit additional data files (200MB limit)

   c) Critical Reviews
Provide an in depth critical analysis of the field. The review will need to be an up to date and comprehensive analysis of all of the literature.

*Note: This section applies to final report, and to the interim report only if some preliminary work has been completed.*

4. Discussion and Conclusions

a) Experimental or simulation based projects:

Critically evaluate the methods and results of your thesis. This includes comparing your results to those obtained in the literature. Interpret your data using statistical inference or simulation validation methods, discussing how well your research addresses stated aims and hypotheses and recommend future studies. Also comment on the novelty and utility of your research and its outcomes.

b) Design projects

Critically evaluate your design making reference to the design specification and measurement of performance. Compare your design with competing technologies. Where appropriate, note how well your devices or software has complied with industry standards, for example what testing would be required for registration by TGA or FDA. Also recommend future design improvements. Comment on the novelty and utility of your design. Is it worth patenting?

c) Critical reviews

Summarise the field making reference to gaps in knowledge that may be addressed by future research and development.

*Note: This section applies only to final report.*

5. References and Overall Presentation

Marks will be deducted for typographical errors, incorrectly labelled graphs, poor thesis structure, incorrect referencing etc.

*Note: This section applies to both Interim Report and to Final Report.*
13 TRANSITION TO UNSW3+

Students who are enrolling in Thesis A or BIOM9020 in T2 2018 will be affected by the three-term academic calendar to be introduced in 2019. The new calendar consists of three-10-week teaching terms. As outlined, Thesis B and BIOM9021 will be due in Week 3 of Term 2 2019.

14 APPLICATION FOR EXTENSION FOR THESIS A OR B

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. The request for extension must come from the supervisor. That is, it is written by, and justified, by the supervisor.
2. Request must be lodged by Week 6 of term.
3. Panel decision will be made by end of week 7.
4. The decision will be made by a panel – consisting of the HoS (or their nominee), Thesis Coordinator, and 1 other person.
5. Students should be alerted to the fact that this is not guaranteed, and thus should not rely on getting an extension.
6. 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.

15 APPLICATION FOR EXTENSION FOR MASTERS’ PROJECT

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. The request for extension must come from the supervisor. That is, it is written by, and justified, by the supervisor.
2. Request must be lodged by Week 6 of term.
3. The decision will be made by the Thesis Coordinator
4. Students should be alerted to the fact that this is not guaranteed, and thus should not rely on getting an extension.
5. Typically, extensions are granted UP TO 3 weeks. The length of the extension need to be requested and justified by the supervisor.
16 PROCEDURE IF YOU FAIL THESIS A, B or C.


Fail in Thesis B – 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 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

17 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).

18 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.

19 RELEVANT RESOURCES

All material will be provided via Moodle

20 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 Course and Teaching Evaluation and Improvement (CATEI) process.

21 DATES TO NOTE

Refer to MyUNSW for Important Dates.
**22 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 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](https://student.unsw.edu.au/plagiarism)

**23 ACADEMIC ADVICE**

- UNSW has a wide range of student support services. The resources listed below should be used by students needing assistance related to aspects of their overall University experience. Specific help regarding this course can be sought from the course coordinator.

  [http://www.student.unsw.edu.au/](http://www.student.unsw.edu.au/)
  [https://my.unsw.edu.au/student/howdoi/HowDoI_MainPage.html](https://my.unsw.edu.au/student/howdoi/HowDoI_MainPage.html)
  [http://www.counselling.unsw.edu.au/](http://www.counselling.unsw.edu.au/)

- 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 coordinator prior to, or at the commencement of, their course, or with the **Equity Officer (Disability)**. 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.

- If you believe that your performance in an assessable component of the course has been affected by illness or another unexpected circumstance, you should make an application for special consideration as soon as possible after the event by visiting UNSW Student Central. Please talk to the course coordinator as well and note that considerations are not granted automatically.

- UNSW has strict policies and expectations relating to Occupational Health and Safety (OHS) accessed at [http://www.ohs.unsw.edu.au/](http://www.ohs.unsw.edu.au/)