

School of Mathematics and Statistics
8719 Mathematics
Master Project Guidelines



1 Introduction

The project is a compulsory part of any Master by coursework program and is worth 12 Units of Credit (UoC) over two consecutive terms. It involves writing a thesis, i.e., a coherent written exposition of a chosen topic. The project gives the student an opportunity to make practical use of the knowledge gained through their Master, and to learn to work independently. It prepares the student for the problem-solving and report-writing aspects of future employment, or for progression to a research degree. The thesis could include a literature survey and a critical analysis of the topic area or could be a small research project.

2 Admission

The project is normally taken over the last two consecutive terms of the program,¹ and after completing at least 36 UoC (typically, 6 courses) over at least three terms. Progression to the project is subject to academic performance: students seeking to enrol in the project are required to have attained a current Weighted Average Mark (WAM) of ***70 or higher** in their Master program. Students who do not attain a WAM of 70 or higher may be asked to delay the start of their project for one term to improve their WAM or will be transferred to the Graduate Certificate in Mathematics and Statistics (program 7659) or the Graduate Diploma in Mathematics and Statistics (program 5659), as appropriate, to complete the remaining courses and graduate with that degree.

In any case, enrolment in the project is conditional on the approval of the program authority, i.e., the Director of Postgraduate Studies (Coursework), and is subject to appropriate supervision resources being available.

*NB: The required WAM 70+ **includes** failed course/s in the WAM calculation.

WAM calculation tool is provided to determine marks needed for entry into the thesis project:

https://docs.google.com/spreadsheets/d/1p7ILcOXHLD5XOIz_c_cVWhMiyf3RiEvXUKWa39XnSTc/edit?usp=sharing

3 Supervision

Each student works under the supervision of one academic staff member, who must be a member of the School of Mathematics and Statistics.² The supervisor is expected to help select the project topic, direct the student to useful references on the topic, help explain difficult points, provide adequate feedback on the progress of the project (both in terms of the timing and comments), read and comment on drafts of the thesis, and give general advice. The student is expected to generate much of the direction for the project and is assumed to be able to work independently for most of the time.

Members of the School are flexible about the range of research areas in which they will supervise students. Prospective students should start talking to staff members about possible topics as early as possible. Ideally, a decision about the supervisor and the topic should be made before the beginning of the first term of the project, this to facilitate a smooth start. Supervision by individual staff members is conditional on staff agreement (see Form1 on the course Moodle page). As a tip, please take some time to find the right supervisor that best relates to your interests and create an individual email to explain the research interest and how it relates to the Supervisors research, we find this practice more successful and better than a generic email to all suitable staff.

4 Timeline

Before the first term of their project, students will be provided class permission to enrol and should enrol in MATH5005 ('Advanced Mathematics Project A') as part of their program. Then, they should complete **Form 1 task in Moodle**, which requires details of your thesis topic and supervision. Information in Moodle is required **to be completed by Friday Week 1 of that term**.

¹For part-time students, the project terms - up to 4 - must be consecutive as well.

²In certain circumstances, when it is in the obvious interest of the project, a co-supervisor may be appointed. The co-supervisor can be another staff member of the School, or an academic from another UNSW School/Faculty. Co-supervision must be approved by the Director of Postgraduate Studies (Coursework).

At the start of the second term of their project, students should enrol in MATH5006 ('Advanced Mathematics Project B') as part of their program. This will be done automatically for students by the School Admin Office and communicated, subject to enrolment post census date for MATH5005. At the end of the term, students need to obtain approval from their supervisor to submit their thesis, prior to submission, by completing **Form 2 task in Moodle**, which is approval to submit their Masters Thesis, which is finalized in Moodle by the end of Week 8 of the final term of the project. Theses submitted without the approval of the supervisor through **Form 2 task in Moodle**, will not be assessed. Students should ensure that their supervisor has sufficient time in which to provide feedback on final drafts of their thesis prior to Week 8. Students who do not get their supervisor's approval for submitting, will normally be awarded with the Graduate Diploma in Mathematics and Statistics (program 5659).

The due date for submission of the thesis is normally **4.00PM on the final day of Week 10 of the final term of the project**.

After consultation with the supervisor, the Director of Postgraduate Studies (Coursework) may approve an extension of time to submit the thesis (no greater than 4 weeks) on the grounds of illness, accident, disability, bereavement or other compassionate circumstances that have affected a student's work in more than in a minor way.⁴ In granting the extension, the Director of Postgraduate Studies (Coursework) is to ensure the length of the extension is commensurate with the time the student was unable to work on their project and the extension does not unduly advantage the student over those who submitted in accordance with the initial deadline. Importantly, late thesis submission, even when approved by the Director of Postgraduate Studies (Coursework), is likely to delay the student's graduation. Due to sponsorships and visa requirements, international students are required to gain approval from the UNSW International Student Experience Unit (ISEU, <https://student.unsw.edu.au/international>) prior to the extension request.

If the thesis is submitted late with no good reason, the following rule will be applied. The final project mark F will be calculated as

$$\begin{array}{ll} R & \text{if } R < 50, \\ 50 + (R - 50)e^{-0.03 \times n} & \text{if } R \geq 50, \end{array}$$

where R is the recommended mark before taking lateness into account, and n is the number of days that the thesis is overdue.

In agreement with the above, the students should conform to the following timeline. "**T1**" refers to the **first project term**, "**T2**" refers to the **final project term**. For part-time students, this timeline should be adapted pro rata.

³Forms can be downloaded from the School website.

⁴This does not apply to anything that affects a student's work. For instance, the University expects that employment-related matters will not affect a student's study. Anything related to a student's social, or sporting life is also not included.

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| Before the start of T1, ideally during the previous term | Talk to staff members about potential project topics, and select a potential supervisor |
| Two weeks before the start of T1 | Complete Form 1 in Moodle , nominating the supervisor and formalising the topic |
| T1 | Research, reading, discussion and understanding of the topic |
| By the beginning of T2 | Outline of project and significant piece of writing |
| T2 | More reading and deeper understanding of the topic, writing of the thesis |
| Around Week 6, T2 | Give substantial draft to supervisor for approval of submission |
| By the end of Week 8, T2 | Complete Form 2 in Moodle , attesting the supervisor's approval for submission of the thesis |
| 4.00PM, Friday, Week 10, T2 | Submission of the thesis |
| Study period, T2 | Oral presentation of the thesis (see Section 6 below) |

5 Thesis format

The thesis should be in 12pt font, singly spaced (or one-and-a-half spaced). Typically, a thesis should be between 40 and 60 pages in length.⁵ Students must typeset their thesis using appropriate mathematical typesetting software, normally LaTeX. The software to be used should be discussed and agreed with the supervisor at the commencement of the project. Students should allow for time to become conversant with the typesetting software. The thesis should be organised as follows:

- A cover page, showing (1) the UNSW crest; (2) the full title of the project; (3) the name of the student; (4) the name of the supervisor; (5) "School of Mathematics and Statistics, UNSW Sydney"; (6) the month and the year of submission; (7) "Submitted in partial fulfilment of the requirements of the degree of" the degree.
- The plagiarism form, where the student declares that the thesis is their own work (see Section 7);
- (optional) A statement acknowledging the extent and nature of any assistance received in the pursuit of the project.
- An abstract, concisely describing the content, scope, and results of the project.
- A table of contents.
- The thesis body organised in several chapters (including an introduction and a conclusion).
- A reference list, including all the references cited in the thesis and arranged alphabetically by author.

The following skeleton LaTeX file has been created to help students get started:

- unsw-sms-masters-thesis-template.tex

This LaTeX template works in conjunction with the following UNSW crest files and UNSW thesis style file (adapted for the School):

⁵In certain circumstances, when it is in the obvious interest of the project, the thesis can be shorter or longer. This should be discussed with and approved by the supervisor and the Director of Postgraduate Studies (Coursework).

- unsw-crest.pdf
- unsw-crest.eps
- unswthesis.cls

NB: These files need to be saved in the same folder as unsw-sms-masters-thesis-template.tex for correct compilation.

Students are required to submit two electronic (in pdf format) copies of their thesis through the Moodle course page, by the set deadline. A submission link (usually through Turnitin) will be provided. It is the student's responsibility to allow sufficient time before the submission deadline of Week 10.

6 Assessment

The thesis will be assessed for quality in four major areas, each of which being equally important:

- Exposition: structure and presentation of the thesis, including definition of the problem, organisation of the argument, clarity in terms of writing style and illustrative materials.
- Literature coverage: sufficient introductory and summary material, position of the topic in a wider context, review, and critique of relevant literature in the field.
- Critical analysis and insight: understanding of the problem and/or model, justification and implementation of the appropriate method and techniques, quality of the discussion (analysis and interpretation), appropriateness of conclusions and recommendations.
- Originality: new contribution by way of modifying or extending earlier methods, by developing new examples, or by application to a new area.

Normally, the thesis will be assessed by two reviewers, one being the supervisor and the other being another academic member of the School nominated by the supervisor.⁶ Both reviewers will provide a written assessment and mark based on the above criteria. Each mark contributes 40% toward the final mark.

Oral presentation

Typically, in the term study period following the submission of the thesis, the student gives an oral presentation of 15 minutes on their thesis to staff members of the School, interested visitors and other students. A short session of Questions & Answers follows.

The presentation is worth 20% of the final mark. The presentation will be assessed on: engagement; knowledge displayed; motivation presented for the study of the topic; description of contributions/achievements; description of results; clarity of verbal discussion; clarity of slides/figures; keeping to time; and responses to questions.

7 Fraud and plagiarism

Plagiarism is the presentation of the thoughts or work of another as one's own. Examples include:

- direct duplication of the thoughts or work of another, including by copying material, ideas or concepts from a book, article, report, or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, website, Internet, other

electronic resource, or another person's assignment without appropriate acknowledgement.

⁶The reviewer's name must be kept confidential from the student until the examination process is complete and the reviewer has indicated their approval to be identified.

- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original.
- piecing together sections of the work of others into a new whole.
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor.

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism. Knowingly permitting your work to be copied by another student may also be plagiarism. An assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The University has policies on academic honesty and plagiarism which all students should familiarise themselves with, see:

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

The Learning Centre website is the main repository of resources for students regarding plagiarism and academic honesty. These resources can be located at the aforementioned url. The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in correct referencing practices; paraphrasing, summarising, essay writing, and time management; appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts. Individual assistance is available on request from the Learning Centre.

Students 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 their thesis.

8 Additional information

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