

## School of Mathematics and Statistics

### 8161 Financial Mathematics and 8750 Master of Statistics 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). It can be done in one of two ways – as a group project over a single term (via MATH5925, 12 UOC) or as an individual project over two terms (via MATH5005 and MATH5006, 6 UOC each). MATH5925 provides training in research and project management in a group setting. MATH5005/5006 provides individualised training in research that is appropriate for students considering a further research degree. As of Term 1 2023, MATH5925 will be the primary pathway to project completion and MATH5005/5006 will only be available to students considering a further research degree.

Via either pathway, a project involves: working independently on a problem that makes practical use of knowledge gained earlier in the Masters program; writing a thesis, i.e., a coherent written exposition of a chosen topic; presenting key results to students and staff. MATH5925 additionally provides training doing project work in a group setting. It prepares the student for the problem-solving and communication aspects of future employment, or for progression to a research degree. The thesis could include a literature survey and critical analysis of a topic area, or it could be a small research project that progresses the field of knowledge in a specific area.

## 2 Admission

The project may be taken after completing at least 36 UoC (typically, 6 courses) over at least three terms. Progression to the project is subject to academic performance. Students who meet the entry requirements will be provided permission to enrol into the MATH5925 Project course, enabling the student to choose the course project from a list of topics provided in Moodle. A supervisor is allocated to each project offering who has expertise in the area. If the student chooses to delay the start of the Project, the permissions will be set up automatically for the following term enrolment. Advice to the School is not required if not enrolling. Eligible students are contacted each term to seek advice of their intention to start the Thesis project.

The requirements for entry to the MATH5925 Project course is a WAM of 65 or higher having completed 36 units of credit (6 coursework courses) in either 8161 or 8750 Masters program<sup>1</sup>.

If the student does not meet the entry requirements, they are required to contact the Program Authority to discuss the possibility of enrolment, which is on a case-by-case basis. The advice may also ask students 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.

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<sup>1</sup> NB: The required WAM 65+ **includes** failed course/s in the WAM calculation.

WAM calculation tool is provided to determine marks needed for entry into the thesis project. Please save as your own file and remove your marks from the online spreadsheet each time after use.

[65 WAM Calculation for project.xlsx](#)

## **MATH5005/5006 Admission**

Up until the end of 2022, enrolment in MATH5005/5006 is available to any student who has completed 36 UOC with a WAM of 70 or greater.

As of Term 1 2023, enrolment in MATH5005/5006 requires permission of the Program Authority, and will only be awarded to students meeting all of the below circumstances:

- The student is considering enrolling in a research degree after completion of their Masters program.
- Student marks are on track to be eligible for a scholarship if they were to apply for a research degree (a WAM of 85 or higher would be required on completing the Masters, so WAM on project application should be close to this range).
- A supervisor and working project title have been agreed upon. Evidence of correspondence to this effect must be provided on application.

Students should contact the Program Authority by email ([pg.mathsstats@unsw.edu.au](mailto:pg.mathsstats@unsw.edu.au)) for permission to enrol. Once given permission the student may then enrol in MATH5005 and MATH5006 *in consecutive terms*<sup>2</sup>.

## **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<sup>3</sup>. In MATH5925, the supervisor is attached to Project topics as offered on the course Moodle page only. Students must be enrolled in MATH5925 to view available topics. Each student must select a project topic and join a group of 3-5 students *before the first scheduled meeting in Week 1*. The Supervisor will support the group project closely, with regular weekly meetings, to provide feedback on the progress, read and comment on the drafts of the thesis and give general advice. The Students are expected to generate much of the direction for the project and all group members are expected to be actively involved in the project, with well-defined roles, at all stages.

In MATH5005/5006, as of Term 1 2023, the project topic is negotiated with the supervisor prior to admission. Until that time, Form 1 must be completed by Friday of Week 1 to confirm project topic and supervisor agreement.

## **4 Timeline**

The timelines are necessarily very different for MATH5925 and MATH5005/5006.

For **MATH5925**, if a student meets enrolment requirements (i.e., WAM 65+ and completion of 36 UOC), they will be enrolled into MATH5925 Project. Before the start of Week 1, they should look at the project offerings and join a group to work on the project topic of their choice. A supervisor and proposed meeting time has been allocated to each project group. The number of projects offered will vary with enrolments, expect 2-3 options to be available most terms. Students who have enrolled but not chosen a topic by the first meeting of Week 1 will be automatically allocated to a group. Further assessments and deadlines will be as indicated in the Course Outline and on Moodle.

For **MATH5005/5006** eligible students (see Admission advice above). Students are required to find a supervisor and a project topic prior to the start of Term. Students can either email the Program Authority ([pg.mathsstats@unsw.edu.au](mailto:pg.mathsstats@unsw.edu.au)) for permission to enrol, or alternatively, submit the webform linked below, to provide advice of intention to start the Masters project and enrolment will be provided in the term specified in MATH5005 if entry requirements are met - <https://forms.office.com/r/dsxPzC76m0>

Once enrolled in MATH5005: students are required to 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.** The Supervisor must confirm this information by Week 3, an email will be sent to request this (by the School).

The Second term of the project (MATH5006), **Form 2** will be available to students (and due) **in Moodle by end of Week 1 and will need to provide a copy of their draft thesis to their Supervisor to review.** After submission, the Supervisor's advice is required to confirm their student will be ready to submit their thesis by week 10, in Week 3. A second request will be sent to Supervisors in week 8 to confirm their student is on target to submit in week 10.

Theses submitted without the approval of the supervisor through Form 2 task in Moodle, will not be assessed. Students who do not meet the project requirements will normally be awarded with the Graduate Diploma in Mathematics and Statistics (program 5659). Note, 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.

<sup>2</sup> For part-time students, the project terms - up to 4 - must be consecutive as well

<sup>3</sup> In 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)

For all projects (group and individual), the two major assessment tasks are the thesis and a presentation.

In **MATH5925**, additional formative assessments (project proposal, draft thesis) will be due at intermediate deadlines to assist students in project planning. The due date for submission of the thesis is normally **4.00 PM on the final day of Week 10 of the final term of the project** and presentations are normally held **on Wednesday or Thursday of the following week**, you will ordinarily be given several weeks' notice of the precise time.

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 a minor way<sup>4</sup>. 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 (or group of students) 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

$$R \quad \text{if } R < 50, \\ 50 + (R - 50)e^{-0.03 \times n} \quad \text{if } R \geq 50,$$

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

## 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<sup>5</sup>. 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.

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

<sup>5</sup> In 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).

- 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):

- 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. MATH5925 students are also required to complete a group dynamics questionnaire *within seven days of thesis submission* in order for their thesis to be marked.

## 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<sup>6</sup>. Both reviewers will provide a written assessment and mark based on the above criteria. Each mark contributes 40% toward the final mark.

### **Oral presentation**

For each thesis project, a presentation of 15 minutes is given to staff, students and visitors of the School. A short session of Questions & Answers follows.

The presentation is worth 20% of the final mark. The presentation will be assessed on:

- Structure (logically organised and presented, kept to time)

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

Delivery (engagement, clarity, enthusiasm)

- Visual aids (quality of figures, legibility of text, visual impact)
- Knowledge displayed (critical insight, aids understanding, response to questions)

In MATH5925, there are additional formative assessments, see the Course Outline for details. Note also that MATH5925 students receive an individual thesis mark which reflects relative contributions to the thesis and presentations, as measured by self-assessment questionnaires and supervisor observations.

## **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.
- 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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