School of Mathematics and Statistics

8161 Financial Mathematics
8750 Master of Statistics

Master Project Guidelines

1   Introduction

The project is a <u>compulsory</u> 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. MATH5925 is the primary pathway to project completion and MATH5005/5006 is only encouraged for 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; and presenting key results to students and staff. 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 is usually completed during the last one or two (consecutive) terms of the program, and after completing <u>at least 36 UoC</u> (typically, 6 courses).

Progression to the project is subject to academic performance. Students who meet the entry requirements will be given permission to enrol into the MATH5925 Project course. Once enrolled, students can join a project team during O-week based on a list of topics provided in Moodle, subject to availability.

The requirements for entry to the MATH5925 Project course is a Weighted Average Mark (WAM) of **65* or higher**, having completed 36 units of credit (6 coursework courses) in either 8161 or 8750 Masters program.

*NB: The required WAM 65+ **includes** failed courses in the WAM calculation.

The [WAM calculation tool](#) is provided to determine marks needed for entry into the thesis project.

If the student does not meet the entry requirements, they are required to contact the Director of Postgraduate Studies (Coursework) to discuss the possibility of enrolment, which is on a case-by-case basis. Students who do not attain a WAM of 65 or higher have two options. One, they may delay the start of their project for one term to attempt to improve their WAM. Two, they may transfer to 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 Director of Postgraduate Studies (Coursework) and is subject to appropriate supervision resources being available. See below advice on enrolment under "Timeline".

MATH5005/5006 Admission

Enrolment in MATH5005/5006 requires permission of the Director of Postgraduate Studies (Coursework), and will only be allowed for 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 Director of Postgraduate Studies (Coursework) by email (pg.mathsstats@unsw.edu.au) for permission to enrol. Once given permission the student may then enrol in MATH5005 and MATH5006 *in consecutive terms*. For part-time students, the project terms - up to 4 - must be consecutive as well.

3   Supervision

Each student works under the supervision of one academic staff member, who is usually a member of the School of Mathematics and Statistics. Projects with a supervisor external to the School must have a co-supervisor within the School. For these cases, the potential supervisor or student should contact the Director of Postgraduate Studies (Coursework).

In MATH5925, students must be enrolled in MATH5925 to view available topics. Each student must select a project topic and join a group of 3-4 students *by the end of O-week*. Students will receive an announcement with instructions through Moodle during O-week about joining a project group. The Supervisor will support the group project closely, with weekly meetings, to provide feedback on the progress, read and comment on the drafts of the thesis and give general advice. 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, the project topic is negotiated with the supervisor prior to admission. 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. Supervision by individual staff members is conditional on staff agreement. 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 Supervisor's research. We find this practice more successful than a generic email to all suitable staff.

4   Timeline

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

For both courses, the due date for submission of the thesis is normally **5.00PM on the final day of Week 10 of the final term of the project**.

MATH5925

For **MATH5925**, if a student meets enrolment requirements (i.e., WAM 65+ and completion of 36 UOC), they will be enrolled into MATH5925 Project. During O-week, they should look at the project offerings and join a group to work on the project topic of their choice. Each project group has a supervisor and proposed weekly meeting time. The number of projects offered will vary with enrolments, with 2-3 options available most terms. There are intermediate assessments throughout the term to ensure groups are making sufficient progress. Further assessments and deadlines will be as indicated in the Course Outline and on Moodle.

Students are allowed to enrol in MATH5925 up until **Wednesday of O week**. After that, enrolment will only be allowed subject to availability. If there are no more project spots available, students will have to wait and enrol the following term.

MATH5005/MATH5006

For **MATH5005/5006** eligible students (see Admission advice above), students are required to find a supervisor and a project topic by **Wednesday of O week**. Students can either email the Director of Postgraduate Studies (Coursework) (contact information at the bottom of this document) 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.

Intention to start project form: https://forms.office.com/r/dsxPzC76m0

If students have not found an individual supervisor by Wednesday of O week, they should enrol in MATH5925 instead, or delay their project start until a future term. Note that as stated above, Wednesday of O week is the enrolment deadline of MATH5925. If the student has not enrolled in the group project and cannot find an individual project after this date, they are not guaranteed a spot in MATH5925, and may need to delay their project start until the next term.

Once enrolled in MATH5005, students are required to complete **Form 1** in Moodle, which requires details of your thesis topic and supervision. **Form 1 is required to be completed by Friday of Week 1 of that term**. The Supervisor must confirm the project supervision and details by Week 3 (the school will contact the supervisor for confirmation).

For the second term of their project, students will be automatically enrolled into MATH5006 ('Advanced Maths Project B') as part of their program. This will be communicated by email and is subject to enrolment post census date in MATH5005 the term prior.

Once enrolled in MATH5006, students are required to complete **Form 2** in Moodle, which requires confirmation of sufficient progress on the project. **Form 2 is required to be completed by Friday of Week 1 of that term**. After submission, the Supervisor's advice is required to confirm the student will be ready to submit their thesis by week 10. Supervisors

will receive an email from the School in week 3 to confirm Form 2 submission. A further email will be sent in week 8 to the Supervisor to confirm the student is on target to submit.

Theses submitted without the approval of the supervisor 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).

The due date for submission of the thesis is normally **5.00PM 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. A request for an extension should be made **before** the thesis submission deadline. Note that extensions are only granted in specific and unusual circumstances. 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.

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. The extension time will also be chosen to ensure it 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 without approval from the Director of Postgraduate Studies (Coursework), the thesis mark will receive the following penalty. A late penalty of 5% of the maximum mark for the thesis will be applied per day that the thesis is late, where "late" in this context means after any extensions granted (including Special Consideration or Equitable Learning Provisions). For example, a thesis that was awarded 75% would be given 65% if it was submitted 24-48 hours (1-2 days) after the deadline. A "day" is any additional 24 hours after the thesis submission deadline, including weekends and holidays. Any thesis submitted after 5 days late (120 hours) will not be accepted.

The students should conform to the following timeline. "T1" refers to the first project term, "T2" refers to the second/final project term. For part-time students, this timeline should be adapted pro rata.

Before the start of T1, ideally during the previous term	Talk to staff members about potential project topics and select a potential supervisor.
Wednesday of O Week	Confirm a supervisor.

Friday of Week 1	**Complete Form 1 in Moodle**, nominating the supervisor and formalising the topic.
T1	Research, reading, discussion and understanding of the topic. Begin writing an outline and draft of the thesis.
Week 3, T1	Your Supervisor will be requested to confirm supervision and topic title, by the School, as per advice from Form 1.
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.
By Friday Week 1, T2	**Complete Form 2 in Moodle** and provide a draft of the thesis project to the Supervisor.
By the end of Week 3, T2	Supervisor to advise thesis submission is on target for week 10; by reply to School via email request.
Week 8, T2	School will again contact Supervisor for update on thesis submission confirming on target for week 10.
5.00PM, Friday, Week 10, T2	Submission of the thesis
Study period (Week 11), 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. 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).

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 8).
- 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.

Students will be required to separately submit a **contribution statement**, acknowledging the extent and nature of any assistance received in the pursuit of the project.

The [School website contains LaTex template files](#) used for writing the thesis, including UNSW crest and UNSW thesis style files:

- unsw-sms-masters-thesis-template.tex
- unsw-crest.pdf
- unsw-crest.eps
- unswthesis.cls

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

MATH5005/5006: 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.

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. Both reviewers will provide a written assessment and mark based on the above criteria. Each mark contributes 40% toward the final mark.

MATH5925: When groups submit their final thesis, each student will be required to complete an individual questionnaire. The questionnaire is designed to measure each individual's contribution to the project. If the questionnaires suggest that some students contributed significantly less than others in a particular group, the course convenor and supervisor will follow up with individual interviews of each group member and will adjust the marks accordingly. Thus, different group members may receive different marks on the thesis according to their contributions.

7 Oral presentation

Typically, in the week following the submission of the thesis (Week 11, during the study period before exams), the student or group gives an oral presentation of 15 minutes 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:

- Structure (logically organised and presented, kept to time)
- Delivery (engagement, clarity, enthusiasm)
- Visual aids (quality of figures, legibility of text, visual impact)
- Knowledge displayed (critical insight, aids understanding, response to questions).

8 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 Academic Skills website is the main repository of resources for students regarding plagiarism and academic honesty. The Academic Skills Team 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 Academic Skills Team.

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.

9 Additional information

Please refer to the School of Mathematics and Statistics website for updated information. https://www.unsw.edu.au/science/our-schools/maths/student-life-resources/postgraduate-coursework/postgraduate-coursework-project

Please contact: Dr. Libo Li
Director of Postgraduate Studies (Coursework)
Room: H13 Anita Lawrence -1035 | Phone: (02) 9385 7025
Email: pg.MathsStats@unsw.edu.au   *(This version, May 2024)*