School of Mathematics and Statistics

8161 Master of Financial Mathematics

8719 Master of Mathematics

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). The project courses are normally taken during the last one or two terms of the program, and after completing **at least 36 UoC** (typically, 6 courses).

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.

Contact details are noted at the end of this document if there is a question after reading these Guidelines.

For permission to enrol into the Master Project, please submit the webform:

"Intention to start project form": https://forms.office.com/r/yempMSm5Sn

You can submit the form up to a year in advance of your intended project start term. You do not need to have met the enrolment requirements (completed 36 UoC) to submit the form stating your intention to enrol. You should submit the form as soon as you have decided on your intended term to undertake the project. The web form must be **submitted at least 3 weeks before O-week** of the term that you require enrolment in the project.

A project involves: working independently on a problem that makes practical use of knowledge gained earlier in the Master program; writing a thesis, i.e., a coherent written exposition of a chosen topic; and presenting key results. A thesis may be: a literature survey and critical analysis of a topic area, a complex data analysis applying an existing method to a new dataset, or a small research project that progresses the field of knowledge in a specific area.

UNSW policy is "a normal workload is about 25 hours each term (or approximately 2.5 hours per week) per UoC". A thesis is 12UoC, so students should expect to spend at least 300 hours on their thesis projects. For group projects, *each student* should expect to spend 300 hours.

Part-time students should contact the Director of Postgraduate Studies (Coursework) to help with planning their project terms.

For any questions about these guidelines, please contact the Director of Postgraduate Studies (Coursework). See Contact Information at the bottom of this document.

2 Choice of project course

MATH5925 is the primary pathway to project completion, while MATH5005/5006 is encouraged for students considering a further research degree.

- **Individual project: MATH5005/5006**
  - MATH5005 and MATH5006, over two terms, 6 UoC each.
  - Provides individualised training in research that is appropriate for students considering a further research degree.
  - For students wishing to undertake projects in pure or applied mathematics.
  - Students are responsible for **finding their own supervisor.**
  - WAM of at least 85 is recommended for MATH5005/5006.
    - Students with a WAM below 85 will still be allowed to enrol in the course, subject to finding a supervisor.
- **Group project: MATH5925**
  - MATH5925, over one term, 12 UoC.
  - Students may not overload (take more than 18UoC) while taking MATH5925.
  - Provides training in research and project management in a group setting.
  - Students will be assigned a project and supervisor.
    - Although we try to take into account student preferences in assigning projects, it is impossible to accommodate all preferences. Some students may be assigned a project that they do not rank highly, or even a project that they rank last. The only way to guarantee working on a particular topic is if a student finds their own supervisor through MATH5005/5006.
  - WAM of at least 65 is recommended for MATH5925.
    - Students with a WAM below 65 will still be allowed to enrol in the course. However, they may find the course challenging and may

need to spend extra time during the course to bring their skills up to the level expected in order to sufficiently contribute to the project. If a student contributes significantly less to the group project than is expected, they may receive a lower mark than the other members of the group (see section below on Assessment), including the possibility of failing.

- Project topics will vary each term. Most project topics are in **statistics, data science, or financial mathematics**, and projects in applied or pure mathematics will likely not be offered during most terms. If a student would like to complete a project in applied or pure mathematics, they should find a supervisor in one of those areas and undertake an individual project.

3 Supervision for MATH5005/5006

Each student works under the supervision of an academic staff member. Below are resources that can help students in finding potential project supervisors.

Usually a student is supervised by a member of the School of Mathematics and Statistics. Any student who is considering a supervisor outside the School should contact the Director of Postgraduate Studies (Coursework) for approval.

General website providing all research profiles at UNSW: UNSW Find a Researcher
Staff website: School of Mathematics and Statistics
A selection of *some* research areas within mathematics and statistics: School of Mathematics and Statistics Research Groups

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. Students are expected to meet with their supervisor regularly, such as weekly or every other week, for both project terms.

Prospective students should start reaching out 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 your 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 for MATH5925

Students must request enrolment in the project by 3 weeks before 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. To request enrolment, fill out the following form.

"Intention to start project form": https://forms.office.com/r/yempMSm5Sn

During O-week, a list of project topics and supervisors will be made available. The number and topic areas of projects offered will vary each term depending on enrolments and available supervisors. Although we make an effort to match students with projects and supervisors based on their preferences, students are **not guaranteed** a particular project, supervisor, or group members.

Groups will meet with their supervisor weekly. 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.

The due date for submission of the thesis is normally **5.00PM on the final day of Week 10**.

5 Timeline for MATH5005/5006

Students must request enrolment in their project before 3 weeks before O-week.

"Intention to start project form": https://forms.office.com/r/yempMSm5Sn

It is the student's responsibility to find their own supervisor. We recommend a student start contacting potential supervisors several weeks in advance, during the term prior to the desired start term. If a student is unable to confirm a supervisor, they should instead enrol in MATH5925.

Students who have been approved will be enrolled into MATH5005, 'Advanced Mathematics Project A'. 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 Mathematics 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.

MATH5005 and MATH5006 must be taken in consecutive terms.

Once enrolled in MATH5006, students are required to complete **Form 2 in Moodle by Friday of Week 1 and provide their Supervisor a draft of their thesis project no later than in Week 1.** This timeline provides time for the Supervisor to review the draft thesis and provide advice by week 3, when the School contacts all Supervisors to confirm if their student is on target to submit by week 10.

Theses submitted without the approval of the Supervisor will not be assessed. Students who do not meet the project requirements will normally be awarded 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**.

The students should conform to the following timeline. “T1” refers to the first project term, and “T2” refers to the second/final project term.

Before the start of T1, ideally during the previous term	Talk to staff members about potential project topics and select a potential supervisor.
Thursday before 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, usually Wednesday or Thursday of the study period.

6 Extensions and late submissions (MATH5005/5006 and MATH5925)

Late policy

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. "Late" in this context means after any extensions granted (including Special Consideration or Equitable Learning Provisions). For example, a thesis that would have been awarded 75% would be given 70% if it was submitted up to 24 hours after the deadline, and 65% if it was submitted 24-48 hours 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.

Extensions

Students should apply for an extension through UNSW Special Consideration. The extension will only be granted if it is approved by the Special Considerations Office, the Supervisor, and the Director of Postgraduate Studies (Coursework). For MATH5925, due to the group nature of the project, extensions for the thesis submission are not common. The maximum potential extension is 4 weeks. Extensions may be granted due to 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. 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 valid grounds for extension.

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) **prior to the extension request.**

7 Thesis format and submission (MATH5005/5006 and MATH5925)

Template files

Students are **required** to use the official template files. The School website contains LaTex template files to be 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

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

Length

A thesis should contain between 30 and 60 **main content pages**. Front matter (table of contents, title page, etc.) and back matter (references, appendices, etc.) do not count as main content pages. Figures and tables of primary interest should be included in the main content pages. Additional figures and tables of secondary interest can be included in appendices (which do not count toward the page count).

The upper page limit is a strict requirement. Content beyond 60 pages **will not be evaluated** unless permission has been granted to have a longer report (see below)**.**

Although the length of the thesis is not directly factored into the mark, the thesis will be evaluated based on whether it contains all the relevant content (and does not contain irrelevant content) at an appropriate level of depth and detail.

The thesis should be in 12pt font, 1.25 spaced, with the 2.5 cm margins. The official template automatically follows these guidelines.

In certain circumstances, when it is in the obvious interest of the project, the thesis can be shorter or longer. A departure from this guideline should be discussed with and **approved** by the supervisor and the Director of Postgraduate Studies (Coursework) in advance of submission.

Format

The official template automatically follows the required format. For those students not using the official template, they should ensure the following guidelines are met.

Students must typeset their thesis using appropriate mathematical typesetting software, normally LaTeX. Many students and supervisors find it convenient to share a project in Overleaf. 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 11).
- 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.

Code

If the project has an associated GitHub repository or other publicly-available materials for reproduction, a link should be provided in the appendix.

Submission

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, including **any use of generative AI.**

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 will be provided.

8 Report Assessment (MATH5005/5006 and MATH5925)

The written thesis report will be assessed for quality in four major areas:

- **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 staff who was not involved with the project. Both reviewers will provide a mark based on the above criteria. The final mark for the thesis report is the average of the two marks. The reviewer's name is kept confidential from the student until

the examination process is complete and the reviewer has indicated their approval to be identified.

MATH5925

Group members may receive different marks based on their overall contribution to the project. A group member who contributes significantly less than the other group members will receive a lower mark than the other group members. A group member who contributes significantly more may receive a higher mark than the other group members. If any group member does not make a sufficient contribution, **it is possible they may receive a failing mark in the course**. Attending all meetings is not enough to receive a passing mark. Each person must make a substantial, technical, and independent contribution to the final product.

When submitting the thesis, all group members will jointly create a contribution statement outlining their respective contributions to the thesis. Each student will also individually complete a confidential peer and self-evaluation survey. These steps enable moderation of the group mark to adjust for individual contributions, if deemed necessary.

9 **Oral presentation** (MATH5005/5006 and MATH5925)

Each student or group gives an oral presentation of 15 minutes. A short session of questions & answers follows. The presentations usually are scheduled during either study week or during the final exam period.

By default, **all students** give their presentation ***in person***. This includes **all members** of a group project. If you have permission from the university to study overseas, or if you have another valid reason you cannot present in person, you can potentially present virtually. If you would like to request to present virtually, please contact both your supervisor and the course convenor for your course (MATH5925 or MATH5006) to explain your situation and request a virtual presentation. Approval of a virtual

presentation is not automatic—you must have a legitimate reason. Please make your request by the end of Week 9.

The audience of the presentation is someone broadly knowledgeable of the field (mathematics, statistics, financial mathematics, oceanography, or data science), but who is not an expert in the particular subject of the project.

A few suggestions for high quality presentations:

- Define any technical terms used.
- Provide interpretation of the results to a non-expert audience, in particular surprising or unusual results.
- Explain the significance of the project in a broader context.
- If possible, do not read off of notecards or a phone.

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).

10 Plagiarism and generative AI (MATH5005/5006 and MATH5925)

Policy on use of Generative AI

The AI policy for the thesis is "assistance with attribution." Please see "How to Navigate AI and Your Assessments" and "Referencing and acknowledging the use of artificial intelligence tools" for more information. Students are required to acknowledge any use of generative AI in their **contribution statement**.

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.

University policies on plagiarism

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

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.

11 UNSW Resources

UNSW has resources that can help you with academic research and writing, including:

- UNSW writing skills support.
- UNSW English language success.
- UNSW academic skills support for postgraduate research students.
- UNSW academic skills support.

12 Contact information

Main point of contact

For **all queries**, including contacting the Director of Postgraduate Studies (Coursework), email: pg.MathsStats@unsw.edu.au

Please use your UNSW student email in making your request. Please include your zID in the email. It is also often helpful if you attach your current academic record.

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