School of Mathematics and Statistics

8959 Data Science and Decisions

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) 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 courses (DATA5011 and DATA5012) are normally taken over the last two consecutive terms of the program, and after completing <u>at least 36 UoC</u> (typically, 6 courses). For part-time students, the project terms - up to 4 - must be consecutive as well.

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 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 the Graduate Certificate in Data Science and Decisions (program 7959), or the Graduate Diploma in Data Science & Decisions (program 5959), 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".

*NB: The required WAM 70+ **includes** failed courses in the WAM calculation.

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

3   Supervision

Each student works under the supervision of an academic staff member, who is a member of the School based on the student's program specialisation. If a student is being supervised by a staff member who is *outside their specialisation*, they will need a co-supervisor within their specialisation. Any student who is considering a supervisor outside their specialisation should contact the Director of Postgraduate Studies (Coursework), who can assist with finding an appropriate co-supervisor. Below are resources that can help students in finding potential project supervisors.

- General website providing all research profiles at UNSW: [UNSW Find a Researcher](#)
- A selection of some research areas within mathematics and statistics: [School of Mathematics and Statistics Research Groups](#)

COMPQS – Computational Data Science and Decisions, School of Computer Science and Engineering
Staff website: [School of Computer Science and Engineering](#)

MATHNT – Quantitative Data Science and Decisions, School of Mathematics and Statistics
Staff website: [School of Mathematics and Statistics](#)

ECONZS – Business Data Science and Decisions; **or,**
ECONZT – Behavioural Data Science and Decisions
Staff website: [School of Economics](#)
Please contact Professor Valentyn Panchenko, the PG Coordinator at this email account only econ.pg@unsw.edu.au for support.

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.

Academic staff 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

Students who have met the entry requirements will be enrolled into DATA5011, 'Data Science and Decisions Project A' (see Admission advice above). They are required to find a supervisor and a project topic prior to the start of Term, **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.

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

Once enrolled in DATA5011, 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 DATA5012 ('Data Science and Decisions Project B') as part of their program. This will be communicated by email and is subject to enrolment post census date in DATA5011 the term prior.

Once enrolled in DATA5012, 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 Data Science and Decisions (program 5959).

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, <u>international students</u> are required to gain approval from the UNSW International Student Experience Unit (ISEU, https://student.unsw.edu.au/international) <u>prior to the extension request.</u>

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	Talk to staff members about potential project topics and select a potential supervisor.

previous term	
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.

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

7   Oral presentation

Typically, in the week following the submission of the thesis (Week 11, during the study period before exams), the student 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

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