Honours Programs in the School of Mathematics and Statistics

An Overview

1 Introduction

This document provides some introductory information about the honours year in the School of Mathematics and Statistics. An electronic version of this document with live links as well other important information (e.g. scholarships) is available at the School's honours webpage. Detailed information including courses offered and potential project topics and supervisors is available in the handbooks for each of the five honours programs in: Applied Mathematics, Financial Mathematics and Statistics, Pure Mathematics, Data Science, and Statistics.

The program coordinators for the five areas are currently:

- **Applied Mathematics**: Marek.Rutkowski@sydney.edu.au
- **Financial Mathematics and Statistics**: Marek.Rutkowski@sydney.edu.au
- **Pure Mathematics**: Laurentiu.Paunescu@sydney.edu.au
- **Data Science, Statistics**: Uri.Keich@sydney.edu.au

2 Entry requirements

Preliminary entrance into the honours program is through the Faculty of Science application portal. The Faculty requirements which must be met include:

- For *old curriculum* students they include:
  - qualifying for the pass degree with a relevant major
  - having a SCIWAM of at least 65
  - securing the agreement of a supervisor
- For *new curriculum* students (commenced studies in 2018 or later) they include:
  - qualifying for the pass degree with two majors, one of which should be cognate to the proposed honours stream (a major which provides a suitable background for the honours stream; in borderline cases the decision of whether a major is cognate is in the hands of the relevant Honours coordinator and the faculty)
  - having a WAM of at least 65
  - securing the agreement of a supervisor

In addition, the School of Mathematics and Statistics requires that the student has a total of at least 18CP or 24CP (depending on their major requirement) of relevant 3XXX or 4XXX courses in which

- the average mark of Advanced level courses is at least 65;
- the average mark of Mainstream level courses is at least 75

Please note the Faculty of Science Honours **application deadline** (for Honours commencement in Semester 1, 2021) is 30 November 2020 and it is 30 June 2021 for starting in Semester 2, 2021.

3 Structure of Honours *(old curriculum students)*

An honours year in Mathematics and Statistics involves four 6CP courses (worth 60% of the final mark) and a project (worth 40%). Formally, each student is administered by one of the five main areas of Applied Mathematics, Financial Mathematics and Statistics, Pure Mathematics, Data Science, and Statistics; this is determined by the project topic and supervisor.

3.1 The honours project (40%)

The honours project centres around an essay/thesis consisting of 50-60 pages written on a particular topic from your chosen area. It need not contain original research (although it might) but it should clearly demonstrate that you have understood and mastered the material. The assessment of the honours thesis is based on the mathematical/statistical content and its exposition, including the written english.

As part of the project you will make a short (20-25 minutes) presentation on your project to staff members and fellow students.

3.2 Course work (60%)

There is some scope to mix and match courses from the three areas (subject to the approval of your supervisor and the relevant Honours coordinator). Courses may require pre-requisites from Senior units of study: see the appropriate detailed guides for listings of these.

Full-time students will normally attend two 6CP lecture courses each Semester, for a total of four courses. All four courses will count towards the student's final assessment. If a student takes more than four courses in total then the top four results will count towards the student's final assessment. See the three detailed guides for details of the various courses.

4 Structure of Honours *(new curriculum students)*

An honours year in Mathematics and Statistics involves four 6CP courses (worth 50% of the final mark) and a project (worth 50%). Formally, each student is administered by one of the three main areas of Applied Mathematics, Pure Mathematics and Statistics; this is determined by the specific program in which the student enrolls.

4.1 The honours project (50%)

The honours project centres around an essay/thesis consisting of 50-60 pages written on a particular topic from your chosen area. It need not contain original research (although it might) but it should clearly demonstrate that you have understood and mastered the material. The assessment of the honours thesis is based on the mathematical/statistical content and its exposition, including the written english.

As part of the project you will make a short (20-25 minutes) presentation on your project to staff members and fellow students.

4.2 Course work (50%)

With the exception of pure math all our honours programs have 1-2 core units which the enrolled students must take. In addition, all our honours programs have a list of available courses divided into categories with some restriction about how many courses can/must be taken from each category. Please refer to the relevant handbooks for details.

5 AMSI courses

Students are welcomed to check the courses offered in January at the AMSI Summer School and also courses available via the Advanced Collaborative Environment (ACE). Note however that due to changes to our honours program these courses will not be counted toward the honours course work requirements in 2021.

6 Prizes and Awards

University Medal
Awarded to honours students who perform outstandingly. The award is subject to Faculty rules, which requires an honours mark over 90 and a SCIWAM of 80 or higher. More than one medal may be awarded in any year in a particular area.

Joye Prize in Mathematics Value: **$5300, with medal and shield**
Awarded to the most outstanding student completing Honours in the School of Mathematics and Statistics.

There is a range of additional prizes awarded to honours students for proficiency, an outstanding thesis or the best seminar presentation in Applied Mathematics / Financial Mathematics and Statistics, Pure Mathematics and Mathematical Statistics / Data Science. See the three detailed guides for details of the various prizes.

You are also invited to look at the faculty-level scholarships and potential students from other states should be particularly aware of the Honours Relocation Scholarship.