Honours Year

UNSW SYDNEY

School of Mathematics and Statistics, October 2025

Why Honours?

- Exposure to advanced coursework and research:
  - Preparation for postgraduate study,
  - Certification of excellence in Mathematics & Statistics,
  - A taste of cutting-edge research, a glimpse of the edge of knowledge.

- Develop valuable skills coveted by employers:
  - Research skills,
  - Technical writing and oral presentation skills,
  - Focus, perseverance, and creativity.

Admission requirements: programs

To enter Honours in Mathematics or Statistics, students must have either:

- Completed Stage 3 of one of the plans in the **Advanced Mathematics**, or the Physical Oceanography plan in the Advanced Science program; or
- Completed a Mathematics or Statistics major in the Science and/or Advanced **Science program**, including at **least 30 units of credit in Level III Mathematics**; or
- Completed a suitable Mathematics or Statistics degree at another university.

To enter Honours in Quantitative Data Science you must have either:

- Completed the **Bachelor of Data Science and Decision program** (any stream) but including at least **18 units of credit in Level III MATH or DATA** courses; or
- Completed a suitable quantitatively based data science bachelor's degree at UNSW or any other university.

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Admission requirements: WAM

Average above 70% in **Level III MATH courses** (usually 30 UOC)

and

Average above 70% in **Core Level III MATH courses** (18 UOC).

- **Pure Mathematics:**
  - MATH3611 Higher Analysis
  - MATH3701 Higher Differential Geometry and Topology
  - MATH3711 Higher Algebra
- **Statistics** (courses from statistics major):
  - MATH3801/3901 Probability and Stochastic Processes
  - MATH 3811/3911 Statistical Inference
  - MATH 3821 Statistical Modeling and Computing
- **Applied Mathematics:**

  If MATHA plan in 2024 and after, 3 applied courses including:
  - MATH3041 Mathematical Modelling for Real World Systems
  - And / or MATH3051 Applied Real and Functional Analysis
  - Any other Core B courses in Applied (list here: https://www.unsw.edu.au/science/our-schools/maths/student-life-resources/undergraduate/programs-and-courses/plans-in-advanced-mathematics-and-advanced-science#appliedmathematics)

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Admission requirements: WAM (QDS)

Average above 70% in **Level III MATH and DATA courses** (usually 30 UOC)

and

Average above 70% in **Core Level III MATH and DATA courses**

- **Quantitative Data Science :**
  - Students must have completed the Bachelor in Data Science and Decision program including at least 18UOC in level III MATH or DATA course.

  or
  - Completed a bachelor degree which includes at least three level III, or higher level, courses in mathematics or statistics, and at least two level III, or higher level, courses in computer science and/or business that are listed as electives in program 3959.

How to apply?

Two types of enrolling students:

- Category A: Internal UNSW applicants in three-year undergraduate programs; all QDS, all external applicants.
- Category B: Internal UNSW students in "**embedded**" programs (honours is a compulsory part of the program). *Note that there are no Cat. B Honours in QDS.

How to enrol?

- Everyone must complete the "**Intention to Undertake Honours**" form (soon for international students (TBC, A), **19th of January** for domestic (A) and embedded (B) students):
https://www.science.unsw.edu.au/study-us/undergraduate/honours-degrees/honours-how-apply ("Apply Now"), or using the link on the school webpage ("*Intention to Undertake Honours form*").

- People in category A must also submit a formal application for the program 4500 Science (Honours):
https://www.science.unsw.edu.au/study-us/undergraduate/honours-degrees/honours-how-apply ("**Apply Online" for 4500 in Category A section**).

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Honours Scholarships

Some scholarships are available for Honours.

Scholarships that require an application can be found on the UNSW scholarships website.

Some merit scholarships will be awarded to the qualifying students without the need to submit an application.

The Honours Year: how does it work?

- **The Honours year...**
  - the final year of the Advanced Science/Advanced Mathematics degree
  - *or* an additional year at the end of your non-Honours Bachelor degree

- You enrol in a thesis subject each term plus **5 approved** (by your Honours coordinator) **courses over the year**
  - **Coursework**: 30 Units of Credit (5 courses at 6 Units of Credit each)
  - **Project/Thesis:** 18 Units of Credit

- There is also a weekly honours seminars / practice times.

Honours Year: courses 2026

You can not enrol yourself in any MATH5XXX courses!

To enrol in the courses please use the honours course selection form on our website:

https://forms.unsw.edu.au/form/honours-course-selection

You need approval from your Honours coordinator on your course election (send an email with your selection).

Honours Year: courses 2026

https://www.unsw.edu.au/science/our-schools/maths/student-life-resources/postgraduate-coursework/postgraduate-courses

Course	Course Name	TERM 1	TERM 2	TERM 3
DATA5002	Data Visualisation	DATA5002		DATA5002
MATH5165	Optimization	MATH5165		
MATH5175	Special Topic Applied Maths A - Calculus of Variations		MATH5175	
MATH5191	Mathematical Optimisation for Data Science			MATH5191
MATH5201	Dynamical Systems and Chaos			MATH5201
MATH5215	Special Topic Applied Maths C - Applied Real and Functional Analysis			MATH5215
MATH5271	Environmental Data Science	MATH5271		
MATH5285	Fluids, Oceans and Climate			MATH5285
MATH5295	Special Topic Applied Maths D - Fractional Calculus: Theory, applications and numerical methods		MATH5295	
MATH5305	Computational Maths for Science & Engineering		MATH5305	

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Honours Year: courses 2026

https://www.unsw.edu.au/science/our-schools/maths/student-life-resources/postgraduate-coursework/postgraduate-courses

Course1	Course Name	TERM 1	TERM 2	TERM 3
MATH5335	Computational Maths for Finance		MATH5335	
MATH5361	Stochastic Differential Equations: Theory, Applications and Numerical Methods			MATH5361
MATH5371	Numerical Linear Algebra	MATH5371		
MATH5505	Combinatorics	MATH5505		
MATH5515	Special Topic Pure Maths A - Analytic Number Theory		MATH5515	
MATH5525	Special Topic Pure Maths B - Lie Groups	MATH5525		
MATH5535	Special Topic Pure Maths C - Introduction to Algebraic Geometry		MATH5535	
MATH5605	Functional Analysis		MATH5605	
MATH5700	Modern Differential Geometry and Topology			MATH5700
MATH5705	Modern Analysis		MATH5705	
MATH5706	Modern Algebra	MATH5706		
MATH5725	Galois Theory			MATH5725
MATH5735	Modules & Representation Theory	MATH5735		
MATH5806	Applied Regression Analysis		MATH5806	

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Honours Year: courses 2026

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Course	Course Name	TERM 1	TERM 2	TERM 3
MATH5816	Continuous Time Financial Modelling			MATH5816
MATH5825	Measure, Integration & Probability			MATH5825
MATH5835	Advanced Stochastic Processes	MATH5835		
MATH5836	Data and Machine Learning			MATH5836
MATH5845	Time Series		MATH5845	
MATH5855	Multivariate Analysis			MATH5855
MATH5868	Bootstrap and other Resampling Methods			MATH5868
MATH5881	Statistical Machine Learning Theory		MATH5881	
MATH5885	Longitudinal Data Analysis		MATH5885	
MATH5901	Stochastic Processes	MATH5901		
MATH5905	Statistical Inference	MATH5905	MATH5905	MATH5905
MATH5916	Survival Analysis	MATH5916		
MATH5945	Categorical Data Analysis			MATH5945
MATH5960	Bayesian Inference & Computation			MATH5960
MATH5965	Discrete Time Financial Modelling	MATH5965		
MATH5975	Introduction to Stochastic Analysis	MATH5975		
MATH6781	Biomathematics		MATH6781	

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Honours Year: courses AMSI Summer School 2026

AMSI summer school courses can be used in place of 6 UOC of coursework MATH5015.

Please refer to the link School of Mathematics and Statistics for guidelines and further information.

*** Program and grant applications close on Oct 26

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Honours Year: project (MATH4001)

- Independent study under the supervision of a member of staff over three terms
  - ✓ Thesis (~60%, including a draft mi-year)
  - ✓ Presentation (~15%, practice and final presentation)
  - ✓ Defence (viva voce, ~25%).

- Potential honours projects and supervisors are on the Honours webpage, but **you are responsible** for finding a supervisor and project.

- Talk to as many people as you can, as early as you can before choosing. This must be organized **before** you apply and start your Honours year!

- Your thesis will describe your project work and place your work in context with current research; any original project work is a bonus!

Honours Year: projects available in 2026

Statistics project areas

Pure project areas

Applied project areas

Physical Oceanography project areas

Quantitative Data Science project areas

Presentation of a few projects:
Scott Sisson (stats), Pavel Krivitsky (stats), Chunxi Jiao (applied), Mareike Dressler (applied), Vera Roshchina (applied), Alex Sherman (Pure), Anna Duwenig (Pure), Mikhail Isaev (Pure).

Next steps...

- You should also talk to potential supervisors **as soon as possible** and receive confirmation so you can add to your application!

- Consult with the relevant Honours Coordinator to discuss your subjects

  Pure: Lee Zhao (l.zhao@unsw.edu.au)

  Applied : Upanshu Sharma (Upanshu.Sharma@unsw.edu.au)

  Physical Oceanography: Amandine Schaeffer (a.schaeffer@unsw.edu.au)

  Statistics: Ziyang Lyu (Ziyang.lyu@unsw.edu.au)

  Quantitative Data Science: Ziyang Lyu (Ziyang.lyu@unsw.edu.au)

- Remember to submit the intention to undertake form for international students (A) / 19 January for domestic (A) and embedded honours (B) students). All information:

  How to apply

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Questions?

Email : Hons.mathsstats@unsw.edu.au

or coordinators (previous page).

Get familiar with “The Honours Year” section on the School website
https://www.unsw.edu.au/science/our-schools/maths/student-life-resources/honours-year