

# Bachelor of Mathematical Sciences (Honours) – Direct Entry

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# Bachelor of Mathematical Sciences (Honours) – Direct Entry Program Notes

## General Electives

- General Electives must include **Broadening Electives** to the value of **9 units** that are not from the following subject areas: COMP SCI, MATHS, PURE MTH, APP MTH, STATS. *ENG 1002* does not count towards the Broadening electives requirement.
- Electives may be any University of Adelaide Undergraduate course for which the student meets the pre-requisites. Please check the availability, restriction and incompatible section on the course planner for elective choices.
- How to choose an elective course in your area of interest? Please refer to the steps via the link: <https://ecms.adelaide.edu.au/study-with-us/student-support/enrolment>

## Mathematical Sciences Electives

- To meet the program requirements for the Bachelor of Mathematical Sciences (Honours) all students must select a major (see below). Your choice of major will need to be taken into consideration when selecting your Mathematical Sciences electives – please refer to the [Majors](#) section for further information.

## Majors

- View individual major requirements in the [Majors](#) section.
- A major to the value of 24 units shall be taken in one of the following:
  - Applied Mathematics
  - Pure Mathematics
  - Statistics

## Courses Not Permitted

The following courses cannot be presented as electives:

- ECON 1008 Data Analytics I
- ECON 1010 Introduction to Mathematical Economics (Advanced) I
- ECON 2503 Intermediate Mathematical Economics II
- ECON 2504 Intermediate Econometrics II

## Mathematical Science Internships

- Internships are available to students and allow students to build and apply skills to a relevant workplace setting.
- Students will need to apply for approved internships on [CareerHub](#), and if successful in gaining an internship will be enrolled by the faculty in either *MATHS 3700 ECMS Internship* (3 units) or *MATHS 3710 ECMS Internship* (6 units).
- For more information see: <https://ecms.adelaide.edu.au/study-with-us/student-support/internships/computer-mathematical-sciences>

## Links and Further Information

- [Course Planner](#) Information about University courses, including availability, class times, restrictions and prerequisites.
- [University Calendar](#) All academic program rules.
- **Contact Ask ECMS:** [askecms@adelaide.edu.au](mailto:askecms@adelaide.edu.au) • +61 8 8313 4148 • [www.ecms.adelaide.edu.au](http://www.ecms.adelaide.edu.au)

## Bachelor of Mathematical Sciences (Honours) – Direct Entry Study Plan

Course		Units	Status
<b>Year 1</b>			
S1	ENG 1002 Programming (Matlab and C)	3	
S1	MATHS 1011 Mathematics IA	3	
S1	#Level I/II/III General Elective	3	
S1	#Level I/II/III General Elective	3	
S2	MATHS 1012 Mathematics IB	3	
S2	STATS 1005 Statistical Analysis and Modelling I	3	
S2	#Level I/II/III General Elective	3	
S2	#Level I/II/III General Elective	3	
<b>Year 2</b>			
S1	MATHS 2101 Multivariable & Complex Calculus II	3	
S1	MATHS 2102 Differential Equations II	3	
S1	MATHS 2103 Probability & Statistics II	3	
S1	#Level II/III General Elective	3	
S2	MATHS 2100 Real Analysis II	3	
S2	STATS 2107 Statistical Modelling and Inference II	3	
S2	#Level I/II/III General Elective	3	
S2	#Level I/II/III General Elective	3	
<b>Year 3</b>			
S1	MATHS 3025 Professional Practice III	3	
S1	*Level III Mathematical Sciences Elective	3	
S1	*Level III Mathematical Sciences Elective	3	
S1	*Level III Mathematical Sciences Elective	3	
S2	MATHS 3021 Capstone Project in Mathematical Sciences III	3	
S2	#Level II/III General Elective	3	
S2	*Level III Mathematical Sciences Elective	3	
S2	*Level III Mathematical Sciences Elective	3	
<b>Year 4</b>			
S1	MATHS 4005A Honours Project in Mathematical Sciences A	0	
S1	*Level IV Mathematical Sciences Group A Elective	3	
S1	*Level IV Mathematical Sciences Group A Elective	3	
S1	*Level IV Mathematical Sciences Group A or B Elective	3	
S2	MATHS 4005B Honours Project in Mathematical Sciences B	0	
S2	MATHS 4005C Honours Project in Mathematical Sciences C	9	
S2	*Level IV Mathematical Sciences Group A Elective	3	
S2	*Level IV Mathematical Sciences Group A, B or C Elective	3	

Core Course		Elective Course (see Elective Tables)	
CM = Completed	CR = Credit Awarded	EN = Currently Enrolled	ENROL = Add to Enrolments

# **General Electives:** Please refer to [Program Notes](#) page for information on general elective requirements.

\* **Mathematical Sciences Electives:** Please refer to Program Notes page for information on requirements

### Elective Ordering

- Please note that the ordering of electives is an example only, students are free to change the ordering of electives if required.

## Bachelor of Mathematical Sciences (Honours) – Direct Entry Elective Tables

Available	Course	Units	Status
<b>Applied Mathematics Elective Table</b>			
S1	<a href="#">APP MTH 3001 Applied Probability III</a>	3	
S1	<a href="#">APP MTH 3002 Fluid Mechanics III</a>	3	
S1	<a href="#">APP MTH 3014 Optimisation III</a>	3	
S1	<a href="#">APP MTH 3021 Modelling with Ordinary Differential Equations III</a>	3	
S2	<a href="#">APP MTH 3016 Random Processes III</a>	3	
S2	<a href="#">APP MTH 3023 Partial Differential Equations and Waves III</a>	3	
S2	<a href="#">APP MTH 3124 Decision Science III</a>	3	
<b>Mathematical Sciences Elective Table</b>			
S2	<a href="#">MATHS 2104 Numerical Methods II</a>	3	
S2	<a href="#">MATHS 3012 Financial Modelling: Tools &amp; Techniques III</a>	3	
S2	<a href="#">MATHS 3026 Cryptography III</a>	3	
SS S1 S2	<a href="#">MATHS 3700 ECMS Internship (see <a href="#">Program Notes</a>)</a>	3	
SS S1 S2	<a href="#">MATHS 3710 ECMS Internship (see <a href="#">Program Notes</a>)</a>	6	
<b>Pure Mathematics Elective Table</b>			
S1	<a href="#">PURE MTH 2106 Algebra II</a>	3	
S1	<a href="#">PURE MTH 3002 Topology and Analysis III</a>	3	
S1	<a href="#">PURE MTH 3007 Groups and Rings III</a>	3	
S1	<a href="#">PURE MTH 3019 Complex Analysis III</a>	3	
S2	<a href="#">PURE MTH 3009 Integration and Analysis III</a>	3	
<b>Statistics Elective Table</b>			
S1	<a href="#">STATS 3001 Statistical Modelling III</a>	3	
S1	<a href="#">STATS 3006 Mathematical Statistics III</a>	3	
S2	<a href="#">STATS 3022 Data Science III</a>	3	
S2	<a href="#">STATS 3023 Computational Bayesian Statistics III</a>	3	

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Course	Units	Status
<b>Group A Elective Table</b>		
S1	APP MTH 4046 Applied Mathematics Topic A - Honours	3
S1	APP MTH 4047 Applied Mathematics Topic B - Honours	3
S1	APP MTH 4048 Applied Mathematics Topic C - Honours	3
S1	PURE MTH 4012 Pure Mathematics Topic B - Honours	3
S1	PURE MTH 4038 Pure Mathematics Topic A - Honours	3
S1	STATS 4013 Statistics Topic A - Honours	3
S2	APP MTH 4049 Applied Mathematics Topic D - Honours	3
S2	APP MTH 4051 Applied Mathematics Topic E - Honours	3
S2	APP MTH 4052 Applied Mathematics Topic F - Honours	3
S2	PURE MTH 4013 Pure Mathematics Topic D - Honours	3
S2	PURE MTH 4066 Pure Mathematics Topic E - Honours	3
S2	STATS 4008 Statistics Topic D - Honours	3
<b>Group B Elective Table</b>		
S1	APP MTH 4101 Applied Probability - Honours	3
S1	APP MTH 4102 Fluid Mechanics - Honours	3
S1	APP MTH 4114 Optimisation - Honours	3
S1	APP MTH 4121 Modelling with Ordinary Differential Equations Hon	3
S1	PURE MTH 4102 Topology and Analysis - Honours	3
S1	PURE MTH 4107 Groups and Rings - Honours	3
S1	PURE MTH 4119 Complex Analysis - Honours	3
S1	STATS 4101 Statistical Modelling - Honours	3
S1	STATS 4106 Mathematical Statistics - Honours	3
S2	APP MTH 4116 Random Processes - Honours	3
S2	APP MTH 4123 Partial Differential Equations and Waves - Honours	3
S2	APP MTH 4124 Decision Science - Honours	3
S2	MATHS 4026 Cryptography Honours	3
S2	MATHS 4112 Financial Modelling: Tools & Techniques - Honours	3
S2	PURE MTH 4109 Integration and Analysis - Honours	3
S2	STATS 4022 Data Science - Honours	3
S2	STATS 4023 Computational Bayesian Statistics III - Honours	3
<b>Group C Elective Table</b>		
S1 S2	APP MTH 4110EX AMSI - Applied Mathematics Topic A - Honours	3
S1 S2	APP MTH 4111EX AMSI - Applied Mathematics Topic B - Honours	3
S1 S2	PURE MTH 4110EX AMSI Pure Mathematics Topic A - Honours	3
S1 S2	PURE MTH 4111EX AMSI Pure Mathematics Topic B - Honours	3
S1 S2	STATS 4110EX AMSI Statistics Topic A - Honours	3
S1 S2	STATS 4111EX AMSI Statistics Topic B - Honours	3

## Bachelor of Mathematical Sciences (Honours) – Direct Entry Majors

### Applied Mathematics Major

Available	Course	Units	Status
	Courses to the value of 12 units from the following:		
S1	<a href="#">APP MTH 3001 Applied Probability III</a>	3	
S1	<a href="#">APP MTH 3002 Fluid Mechanics III</a>	3	
S1	<a href="#">APP MTH 3014 Optimisation III</a>	3	
S1	<a href="#">APP MTH 3021 Modelling with Ordinary Differential Equations III</a>	3	
S2	<a href="#">APP MTH 3016 Random Processes III</a>	3	
S2	<a href="#">APP MTH 3023 Partial Differential Equations and Waves III</a>	3	
S2	<a href="#">APP MTH 3124 Decision Science III</a>	3	
	and Applied Mathematics courses at Level IV to the value of 9 units, including 6 units from the following:		
S1	<a href="#">APP MTH 4048 Applied Mathematics Topic C - Honours</a>	3	
S1	<a href="#">APP MTH 4046 Applied Mathematics Topic A - Honours</a>	3	
S1	<a href="#">APP MTH 4047 Applied Mathematics Topic B - Honours</a>	3	
S2	<a href="#">APP MTH 4049 Applied Mathematics Topic D - Honours</a>	3	
S2	<a href="#">APP MTH 4051 Applied Mathematics Topic E - Honours</a>	3	
S2	<a href="#">APP MTH 4052 Applied Mathematics Topic F - Honours</a>	3	
	and Mathematical Sciences courses to the value of 3 units		

### Pure Mathematics Major

Available	Course	Units	Status
	Courses to the value of 12 units from the following:		
S1	<a href="#">PURE MTH 3002 Topology and Analysis III</a>	3	
S1	<a href="#">PURE MTH 3007 Groups and Rings III</a>	3	
S1	<a href="#">PURE MTH 3019 Complex Analysis III</a>	3	
S2	<a href="#">PURE MTH 3009 Integration and Analysis III</a>	3	
	and Pure Mathematics courses at Level IV to the value of 9 units, including 6 units from the following:		
S1	<a href="#">PURE MTH 4012 Pure Mathematics Topic B - Honours</a>	3	
S1	<a href="#">PURE MTH 4038 Pure Mathematics Topic A - Honours</a>	3	
S2	<a href="#">PURE MTH 4013 Pure Mathematics Topic D - Honours</a>	3	
S2	<a href="#">PURE MTH 4066 Pure Mathematics Topic E - Honours</a>	3	
	and Mathematical Sciences courses to the value of 3 units		

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### Statistics Major

Available	Course	Units	Status
	All of the following courses must be completed:		
S1	<a href="#">STATS 3001 Statistical Modelling III</a>	3	
S1	<a href="#">STATS 3006 Mathematical Statistics III</a>	3	
	and courses to the value of 6 units from the following:		
S1	<a href="#">APP MTH 3001 Applied Probability III</a>	3	
S2	<a href="#">APP MTH 3016 Random Processes III</a>	3	
S2	<a href="#">STATS 3022 Data Science III</a>	3	
S2	<a href="#">STATS 3023 Computational Bayesian Statistics III</a>	3	
S2	<a href="#">APP MTH 3124 Decision Science III</a>	3	
	and Statistics courses at Level IV to the value of 9 units, including 6 units from the following:		
S1	<a href="#">STATS 4013 Statistics Topic A - Honours</a>	3	
S2	<a href="#">STATS 4008 Statistics Topic D - Honours</a>	3	
	and Mathematical Sciences courses to the value of 3 units		