2022 Study Plan – Semester 2 Start

Bachelor of Mathematical Sciences (Honours) – Direct Entry

Contents

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 • +61 8 8313 4148 • www.ecms.adelaide.edu.au

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	Course	Units	Status
Year 1			
S2	ENG 1002 Programming (Matlab and C)	3	
S2	MATHS 1011 Mathematics IA	3	
S2	STATS 1005 Statistical Analysis and Modelling I	3	
S2	#Level I/II/III General Elective	3	
SUM / S1	%MATHS 1012 Mathematics IB	3	
S1	#Level I/II/III General Elective	3	
S1	#Level I/II/III General Elective	3	
S1	#Level I/II/III General Elective	3	
Year 2			
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	
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	
Year 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	
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	
Year 4			
S2	MATHS 4005A Honours Project in Mathematical Sciences A	0	
S2	*Level IV Mathematical Sciences Group A Elective	3	
S2	*Level IV Mathematical Sciences Group A Elective	3	
S2	*Level IV Mathematical Sciences Group A or B Elective	3	
S1	MATHS 4005B Honours Project in Mathematical Sciences B	0	
S1	MATHS 4005C Honours Project in Mathematical Sciences C	9	
S1	*Level IV Mathematical Sciences Group A Elective	3	
S1	*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

%MATHS 1012: Students are strongly recommended to take MATHS 1012 Mathematics IB during the summer session.

Elective Ordering

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

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Elective Tables

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

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	Course	Units	Status
Group A Elective Table			
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	
Group B Elective Table			
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	
Group C Elective Table			
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	

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Majors

Applied Mathematics Major

Available	Course	Units	Status
	Courses to the value of 12 units from the following:		
S1	APP MTH 3001 Applied Probability III	3	
S1	APP MTH 3002 Fluid Mechanics III	3	
S1	APP MTH 3014 Optimisation III	3	
S1	APP MTH 3021 Modelling with Ordinary Differential Equations III	3	
S2	APP MTH 3016 Random Processes III	3	
S2	APP MTH 3023 Partial Differential Equations and Waves III	3	
S2	APP MTH 3124 Decision Science III	3	
	and Applied Mathematics courses at Level IV to the value of 9 units, including 6 units from the following:		
S1	APP MTH 4048 Applied Mathematics Topic C - Honours	3	
S1	APP MTH 4046 Applied Mathematics Topic A - Honours	3	
S1	APP MTH 4047 Applied Mathematics Topic B - 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	
	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	PURE MTH 3002 Topology and Analysis III	3	
S1	PURE MTH 3007 Groups and Rings III	3	
S1	PURE MTH 3019 Complex Analysis III	3	
S2	PURE MTH 3009 Integration and Analysis III	3	
	and Pure Mathematics courses at Level IV to the value of 9 units, including 6 units from the following:		
S1	PURE MTH 4012 Pure Mathematics Topic B - Honours	3	
S1	PURE MTH 4038 Pure Mathematics Topic A - Honours	3	
S2	PURE MTH 4013 Pure Mathematics Topic D - Honours	3	
S2	PURE MTH 4066 Pure Mathematics Topic E - Honours	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	STATS 3001 Statistical Modelling III	3	
S1	STATS 3006 Mathematical Statistics III	3	
	and courses to the value of 6 units from the following:		
S1	APP MTH 3001 Applied Probability III	3	
S2	APP MTH 3016 Random Processes III	3	
S2	STATS 3022 Data Science III	3	
S2	STATS 3023 Computational Bayesian Statistics III	3	
S2	APP MTH 3124 Decision Science III	3	
	and Statistics courses at Level IV to the value of 9 units, including 6 units from the following:		
S1	STATS 4013 Statistics Topic A - Honours	3	
S2	STATS 4008 Statistics Topic D - Honours	3	
	and Mathematical Sciences courses to the value of 3 units		