



THE UNIVERSITY  
of ADELAIDE

# Faculty of Engineering, Computer and Mathematical Sciences 2020 Study Plan

## **Bachelor of Mathematical Sciences**

### Semester 1 Start

[Bachelor of Mathematical Sciences](#)

[Bachelor of Mathematical Sciences \(Advanced\)](#)

[Honours Degree of Bachelor of Mathematical Sciences](#)

## Bachelor of Mathematical Sciences

| Year 1 |   |   |   |   |
|--------|---|---|---|---|
| S 1    | MATHS 1011 Mathematics IA <input type="checkbox"/>  | ENG 1002 Programming (Matlab and C) <input type="checkbox"/>                                    | Level I or II or III Elective ** <input type="checkbox"/>                                       | Level I or II or III Elective ** <input type="checkbox"/>                                       |
| S 2    | MATHS 1012 Mathematics IB <input type="checkbox"/>  | Level I Elective * <input type="checkbox"/>   | STATS 1005 Statistical Analysis & Modeling I <input type="checkbox"/>                           | Level I or II or III Elective ** <input type="checkbox"/>                                       |
| Year 2 |   |   |   |   |
| S 1    | MATHS 2101 Multivariable & Complex Calculus II <input type="checkbox"/>                         | MATHS 2102 Differential Equations II <input type="checkbox"/>                                   | MATHS 2103 Probability & Statistics II <input type="checkbox"/>                                 | Level II Elective ** <input type="checkbox"/>   |
| S 2    | MATHS 2100 Real Analysis II <input type="checkbox"/>  | STATS 2107 Statistical Modelling and Inference II <input type="checkbox"/>                      | Level II Elective ** <input type="checkbox"/>   | Level III Applied Mathematics, Pure Mathematics or Statistics Elective <input type="checkbox"/> |
| Year 3 |   |   |   |   |
| S 1    | MATHS 3025 Professional Practice III <input type="checkbox"/>                                   | Level III Applied Mathematics, Pure Mathematics or Statistics Elective <input type="checkbox"/> | Level III Applied Mathematics, Pure Mathematics or Statistics Elective <input type="checkbox"/> | Level III Elective * <input type="checkbox"/>   |
| S 2    | Level III Applied Mathematics, Pure Mathematics or Statistics Elective <input type="checkbox"/> | Level III Applied Mathematics, Pure Mathematics or Statistics Elective <input type="checkbox"/> | Level III Applied Mathematics, Pure Mathematics or Statistics Elective <input type="checkbox"/> | MATHS 3012 Capstone Project in Mathematical Sciences III <input type="checkbox"/>               |

Core Courses

**\*Electives** may be chosen from courses offered by the School of Mathematical Sciences, School of Computer Sciences or other courses offered by the University of Adelaide. Students will need to satisfy any specified course eligibility requirements. In particular, students should pay attention to any incompatibilities, restrictions, pre-requisites or assumed knowledge which is listed on Course Planner.

**\*\*Broadening Electives** to the value of 9 units from subject areas other than the following: APP MTH, COMP SCI, MATHS, PURE MTH and STATS. The course ENG 1002 Programming (Matlab & C) may not be presented as a Broadening Elective.

The following electives do not satisfy the program rules for this program:  
ECON 1008, ECON 1010, ECON 2503 & ECON 2504 cannot be presented as electives toward the BMaSC.

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>

### Majors

See the Academic Programs Rules at this link for the Majors and Double Majors available:  
[https://calendar.adelaide.edu.au/aprcw/2020/bscms\\_bscm%26cs](https://calendar.adelaide.edu.au/aprcw/2020/bscms_bscm%26cs)

### Minors

Minor in Public Health available to the value of 15 units

### Further Information and Enrolment Advice

Faculty of Engineering, Computer and Mathematical Sciences

Email: [askecms@adelaide.edu.au](mailto:askecms@adelaide.edu.au) [www.ecms.adelaide.edu.au](http://www.ecms.adelaide.edu.au)

### Electives Table

**CHOOSE FROM THE FOLLOWING APPLIED MATHEMATICS ELECTIVES**

|    |  |  |  |  |
|----|--|--|--|--|
| S1 | APP MTH 3001 Applied Probability III <input type="checkbox"/>                              | APP MTH 3002 Fluid Mechanics III <input type="checkbox"/>  | APP MTH 3014 Optimisation III <input type="checkbox"/>                             | APP MTH 3021 Modelling with Ordinary Differential Equations III <input type="checkbox"/> |
|    | APP MTH 3124 Decision Science III <input type="checkbox"/><br><b>(Not Offered in 2020)</b> |  |  |  |
| S2 | APP MTH 2105 Optimisation and Operations Research II <input type="checkbox"/>              | APP MTH 3016 Random Processes III <input type="checkbox"/> | APP MTH 3023 Partial Differential Equations and Waves III <input type="checkbox"/> |  |

**CHOOSE FROM THE FOLLOWING MATHEMATICS SCIENCES ELECTIVES**

|    |  |   |  |  |
|----|--|---|--|--|
| S2 | MATHS 2104 Numerical Methods II <input type="checkbox"/> | MATHS 3012 Financial Modelling: Tools & Techniques III <input type="checkbox"/> | MATHS 3026 Cryptography III <input type="checkbox"/> |  |
|----|--|---|--|--|

**CHOOSE FROM THE FOLLOWING PURE MATHEMATICS ELECTIVES**

|    |   |   |   |   |
|----|---|---|---|---|
| S1 | PURE MTH 2106 Algebra II <input type="checkbox"/>                   | PURE MTH 3002 Topology and Analysis III <input type="checkbox"/>                                | PURE MTH 3007 Groups and Rings III <input type="checkbox"/>   | PURE MTH 3019 Complex Analysis III <input type="checkbox"/> |
| S2 | PURE MTH 3009 Integration and Analysis III <input type="checkbox"/> | PURE MTH 3022 Geometry of Surfaces III <input type="checkbox"/><br><b>(Not Offered in 2020)</b> | PURE MTH 3023 Fields and Modules III <input type="checkbox"/> |   |

**CHOOSE FROM THE FOLLOWING STATISTICS ELECTIVES**

|    |  |   |  |  |
|----|--|---|--|--|
| S1 | STATS 3001 Statistics Modelling III <input type="checkbox"/> | STATS 3006 Mathematical Statistics III <input type="checkbox"/>           |  |  |
| S2 | STATS 3022 Data Science III <input type="checkbox"/>         | STATS 3023 Computational Bayesian Statistics III <input type="checkbox"/> |  |  |

## Bachelor of Mathematical Sciences (Advanced)

| Year 1 |   |  |  |   |
|--------|---|--|--|---|
| S<br>1 | MATHS 1011 Mathematics IA <input type="checkbox"/>                      | ENG 1002 Programming (Matlab and C) <input type="checkbox"/>               | MATHS 1015 Advanced Mathematical Perspectives I <input type="checkbox"/>   | Level I or II or III Elective ** <input type="checkbox"/>         |
| S<br>2 | MATHS 1012 Mathematics IB <input type="checkbox"/>                      | STATS 1005 Statistical Analysis & Modelling I <input type="checkbox"/>     | Level II Elective ** <input type="checkbox"/>                              | Level I or II or III Elective ** <input type="checkbox"/>         |
| Year 2 |   |  |  |   |
| S<br>1 | MATHS 2101 Multivariable & Complex Calculus II <input type="checkbox"/> | MATHS 2102 Differential Equations II <input type="checkbox"/>              | MATHS 2103 Probability & Statistics II <input type="checkbox"/>            | Level II Elective ** <input type="checkbox"/>                     |
| S<br>2 | MATHS 2100 Real Analysis II <input type="checkbox"/>                    | MATHS 2203 Advanced Mathematical Perspectives II <input type="checkbox"/>  | STATS 2107 Statistical Modelling and Inference II <input type="checkbox"/> | Level III Mathematical Sciences Elective <input type="checkbox"/> |
| Year 3 |   |  |  |   |
| S<br>1 | MATHS 3025 Professional Practice III <input type="checkbox"/>           | Level III Mathematical Sciences Elective <input type="checkbox"/>          | Level III Mathematical Sciences Elective <input type="checkbox"/>          | Level III Mathematical Sciences Elective <input type="checkbox"/> |
| S<br>2 | Level III Mathematical Sciences Elective <input type="checkbox"/>       | MATHS 3020 Advanced Mathematical Perspectives III <input type="checkbox"/> | Level III Elective * <input type="checkbox"/>                              | Level III Elective * <input type="checkbox"/>                     |

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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>

### Majors

See the Academic Programs Rules at this link for the Majors and Double Majors available: [https://calendar.adelaide.edu.au/aprcw/2020/bscms\\_bscm%26cs](https://calendar.adelaide.edu.au/aprcw/2020/bscms_bscm%26cs)

### Minors

Minor in Public Health available to the value of 15 units

### Further Information and Enrolment Advice

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## Electives Table

### CHOOSE FROM THE FOLLOWING APPLIED MATHEMATICS ELECTIVES

|    |  |  |  |  |
|----|--|--|--|--|
| S1 | APP MTH 3001 Applied Probability III <input type="checkbox"/>                              | APP MTH 3002 Fluid Mechanics III <input type="checkbox"/>  | APP MTH 3014 Optimisation III <input type="checkbox"/>                             | APP MTH 3021 Modelling with Ordinary Differential Equations III <input type="checkbox"/> |
|    | APP MTH 3124 Decision Science III<br><b>(Not Offered in 2020)</b> <input type="checkbox"/> |  |  |  |
| S2 | APP MTH 2105 Optimisation and Operations Research II <input type="checkbox"/>              | APP MTH 3016 Random Processes III <input type="checkbox"/> | APP MTH 3023 Partial Differential Equations and Waves III <input type="checkbox"/> |  |

### CHOOSE FROM THE FOLLOWING MATHEMATICS SCIENCES ELECTIVES

|    |  |   |  |  |
|----|--|---|--|--|
| S2 | MATHS 2104 Numerical Methods II <input type="checkbox"/> | MATHS 3012 Financial Modelling: Tools & Techniques III <input type="checkbox"/> | MATHS 3026 Cryptography III <input type="checkbox"/> |  |
|----|--|---|--|--|

### CHOOSE FROM THE FOLLOWING PURE MATHEMATICS ELECTIVES

|    |   |  |   |   |
|----|---|--|---|---|
| S1 | PURE MTH 2106 Algebra II <input type="checkbox"/>                   | PURE MTH 3002 Topology and Analysis III <input type="checkbox"/>                             | PURE MTH 3007 Groups and Rings III <input type="checkbox"/>   | PURE MTH 3019 Complex Analysis III <input type="checkbox"/> |
| S2 | PURE MTH 3009 Integration and Analysis III <input type="checkbox"/> | PURE MTH 3022 Geometry of Surfaces III <b>(Not Offered in 2020)</b> <input type="checkbox"/> | PURE MTH 3023 Fields and Modules III <input type="checkbox"/> |   |

### CHOOSE FROM THE FOLLOWING STATISTICS ELECTIVES

|    |  |   |  |  |
|----|--|---|--|--|
| S1 | STATS 3001 Statistics Modelling III <input type="checkbox"/> | STATS 3006 Mathematical Statistics III <input type="checkbox"/>           |  |  |
| S2 | STATS 3022 Data Science III <input type="checkbox"/>         | STATS 3023 Computational Bayesian Statistics III <input type="checkbox"/> |  |  |

## Honours Degree of Bachelor of Mathematical Sciences

| Year 1 |  |  |   |  |
|--------|--|--|---|--|
| S<br>1 | MATHS 4005A Honours Project in<br>Mathematical Sciences A <input type="checkbox"/> | MATHS 4005B Honours Project in<br>Mathematical Sciences B <input type="checkbox"/> | Mathematical Sciences Honours Group<br>A Elective <input type="checkbox"/>      | Mathematical Sciences Honours<br>Group A Elective <input type="checkbox"/>           |
| S<br>2 | MATHS 4005C Honours Project in<br>Mathematical Sciences C <input type="checkbox"/> | Mathematical Sciences Honours<br>Group A Elective <input type="checkbox"/>         | Mathematical Sciences Honours Group<br>A or B Elective <input type="checkbox"/> | Mathematical Sciences Honours<br>Group A or B or C Elective <input type="checkbox"/> |

### Core Courses

Courses to the value of 15 units must be completed from the list of Electives, out of which 9 units must be taken from Group A, 6 units may be taken from Group B and 3 units may be taken from Group C.

### Applied Mathematics, Pure Mathematics or Statistics major requirements

In order to acquire a major in Applied Mathematics, Pure Mathematics or Statistics students must complete 9 units of electives in the discipline including 6 units from Group A.

### Further Information and Enrolment Advice

Faculty of Engineering, Computer and Mathematical Sciences

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## Electives Table

| CHOOSE FROM THE FOLLOWING GROUP A ELECTIVES |  |  |  |  |
|---|--|--|--|--|
| S1  | APP MTH 4046 Applied Mathematics Topic A - Honours <input type="checkbox"/>                        | APP MTH 4047 Applied Mathematics Topic B - Honours <input type="checkbox"/>                                      | APP MTH 4048 Applied Mathematics Topic C - Honours <input type="checkbox"/>              | PURE MTH 4012 Pure Mathematics Topic B - Honours <input type="checkbox"/>                      |
|   | PURE MTH 4038 Pure Mathematics Topic A - Honours <input type="checkbox"/>                          | STATS 4013 Statistics Topic A - Honours <input type="checkbox"/>   | STATS 4014 Statistics Topic B - Honours <input type="checkbox"/>                         |  |
| S2  | APP MTH 4049 Applied Mathematics Topic D - Honours <input type="checkbox"/>                        | APP MTH 4051 Applied Mathematics Topic E - Honours <input type="checkbox"/>                                      | APP MTH 4052 Applied Mathematics Topic F - Honours <input type="checkbox"/>              | PURE MTH 4013 Pure Mathematics Topic D - Honours <input type="checkbox"/>                      |
|   | PURE MTH 4066 Pure Mathematics Topic E - Honours <input type="checkbox"/>                          | STATS 4008 Statistics Topic D - Hons <input type="checkbox"/>  |  |  |
| CHOOSE FROM THE FOLLOWING GROUP B ELECTIVES |  |  |  |  |
| S1  | APP MTH 4101 Applied Probability - Honours <input type="checkbox"/>                                | APP MTH 4102 Fluid Mechanics - Honours <input type="checkbox"/>  | APP MTH 4114 Optimisation - Honours <input type="checkbox"/>                             | APP MTH 4121 Modelling with Ordinary Differential Equations - Honours <input type="checkbox"/> |
|   | APP MTH 4124 Decision Science Honours <b>(Not Offered in 2020)</b> <input type="checkbox"/>        | PURE MTH 4102 Topology and Analysis - Honours <input type="checkbox"/>   | PURE MTH 4107 Groups and Rings - Honours <input type="checkbox"/>                        | PURE MTH 4119 Complex Analysis - Honours <input type="checkbox"/>                              |
|   | STATS 4101 Statistical Modelling - Honours <input type="checkbox"/>                                | STATS 4106 Mathematical Statistics – Honours <input type="checkbox"/>  |  |  |
| S2  | APP MTH 4116 Random Processes - Honours <input type="checkbox"/>                                   | APP MTH 4122 Optimal Functions and Nanomechanics - Honours <b>(Not Offered in 2020)</b> <input type="checkbox"/> | APP MTH 4123 Partial Differential Equations and Waves - Honours <input type="checkbox"/> | PURE MTH 4109 Integration and Analysis - Honours <input type="checkbox"/>                      |
|   | PURE MTH 4122 Geometry of Surfaces - Honours <b>(Not Offered in 2020)</b> <input type="checkbox"/> | PURE MTH 4123 Fields and Modules - Honours <input type="checkbox"/>  | STATS 4105 Time Series - Honours <b>(Not Offered in 2020)</b> <input type="checkbox"/>   | STATS 4022 Data Science Honours <input type="checkbox"/>                                       |
|   | STATS 4023 Computational Bayesian Statistics Honours <input type="checkbox"/>                      | MATHS 4026 Cryptography – Honours <input type="checkbox"/>   | MATHS 4112 Financial Modelling: Tools & Techniques - Honours <input type="checkbox"/>    |  |
| CHOOSE FROM THE FOLLOWING GROUP C ELECTIVES |  |  |  |  |
| S1  | APP MTH 4110EX AMSI Applied Mathematics Topic A - Honours <input type="checkbox"/>                 | APP MTH 4111EX AMSI Applied Mathematics Topic B - Honours <input type="checkbox"/>                               | PURE MTH 4110EX AMSI Pure Mathematics Topic A - Honours <input type="checkbox"/>         | PURE MTH 4111EX AMSI Pure Mathematics Topic B - Honours <input type="checkbox"/>               |
|   | STATS 4110EX AMSI Statistics Topic A - Honours <input type="checkbox"/>                            | STATS 4111EX AMSI Statistics Topic B - Honours <input type="checkbox"/>  |  |  |
| S2  | APP MTH 4110EX AMSI Applied Mathematics Topic A - Honours <input type="checkbox"/>                 | APP MTH 4111EX AMSI Applied Mathematics Topic B - Honours <input type="checkbox"/>                               | PURE MTH 4110EX AMSI Pure Mathematics Topic A - Honours <input type="checkbox"/>         | PURE MTH 4111EX AMSI Pure Mathematics Topic B - Honours <input type="checkbox"/>               |



|  |  |  |  |  |
|--|--|--|--|--|
|  | STATS 4110EX AMSI Statistics<br>Topic A - Honours <input type="checkbox"/> | STATS 4111EX AMSI Statistics<br>Topic B - Honours <input type="checkbox"/> |  |  |
|--|--|--|--|--|