Applied Mathematics

MATHA1

Applied Mathematics concerns the development of Mathematics and models for understanding scientific phenomena, for the solution of technical and industrial problems, and for use in the social, economic and management sciences. Courses are designed to provide basic mathematical and computational skills needed for a wide range of applications, to develop the capability to construct, analyse and interpret mathematical models, and to encourage enthusiasm for the role of the mathematician in a variety of contexts.
<table>
<thead>
<tr>
<th><strong>Faculty</strong></th>
<th>Faculty of Science</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School</strong></td>
<td>School of Mathematics &amp; Statistics</td>
</tr>
<tr>
<td><strong>Study Level</strong></td>
<td>Undergraduate</td>
</tr>
<tr>
<td><strong>Minimum Units of Credit</strong></td>
<td>90</td>
</tr>
<tr>
<td><strong>Specialisation Type</strong></td>
<td>Major</td>
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</table>
Available in Program(s)

Program(s) in which this major is available

Bachelor of Science (Advanced Mathematics) (Honours) - BSc(AdvMath)(Hons)

3956 Advanced Mathematics (Honours)

Faculty: Faculty of Science
Campus: Kensington
Units of Credit: 192
Typical Duration: 4 Years
Specialisation Structure

Students must complete 90 UOC.

Level 1 Core Courses

Students must take 18 UOC of the following courses.

- MATH1081 | 6 UOC
  Discrete Mathematics

- MATH1141 | 6 UOC
  Higher Mathematics 1A

- MATH1241 | 6 UOC
  Higher Mathematics 1B

Level 2 Core Courses

Students must take 36 UOC of the following courses.

- MATH2111 | 6 UOC
  Higher Several Variable Calculus

- MATH2221 | 6 UOC
  Higher Theory and Applications of Differential Equations

- MATH2301 | 6 UOC
  Mathematical Computing

- MATH2601 | 6 UOC
  Higher Linear Algebra

- MATH2621 | 6 UOC
  Higher Complex Analysis

- MATH2901 | 6 UOC
Higher Theory of Statistics

**Level 1 Computer Science Elective**

Students must take at least 6 UOC of the following courses.

any level 1 Computer Science course

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**ENGG1811 | 6 UOC**
Computing for Engineers

**Level 3 Electives - List A**

Students must take at least 18 UOC of the following courses.

**MATH3041 | 6 UOC**
Mathematical Modelling for Real World Systems

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**MATH3101 | 6 UOC**
Computational Mathematics

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**MATH3121 | 6 UOC**
Mathematical Methods and Partial Differential Equations

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**MATH3161 | 6 UOC**
Optimization

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**MATH3171 | 6 UOC**
Linear and Discrete Optimization Modelling

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**MATH3201 | 6 UOC**
Dynamical Systems and Chaos

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**MATH3261 | 6 UOC**
Fluids, Oceans and Climate

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**MATH3311 | 6 UOC**
Mathematical Computing for Finance

MATH3361  |  6 UOC
Stochastic Differential Equations: Theory, Applications, and Numerical Methods

MATH6781  |  6 UOC
Biomathematics

**Level 3 Electives - List B**

Students must complete 12 UOC of Level 3 Mathematics courses, chosen with approval of the Head of School of Mathematics and Statistics or nominee.

*any level 3 Mathematics course*

**Recommended Level 1 Electives**

These courses are not required but are recommended as good complementary Level 1 electives for this major.

Students interested in physical sciences or theoretical oceanography, meteorology or fluid dynamics, both of:

PHYS1121 Physics 1A (6 UOC)

PHYS1221 Physics 1B (6 UOC)

Students interested in social or biological sciences, at least 12 UOC (i.e. both level 1 courses from the subject area) from:

Biology

BABS1201 Molecules, Cells and Genes (6 UOC)

BIOS1101 Evolutionary & Functional Biol (6 UOC)

Psychology

PSYC1001 Psychology 1A (6 UOC)

PSYC1011 Psychology 1B (6 UOC)

Chemistry

CHEM1011 Essentials of Chemistry 1A (6 UOC)
CHEM1021 Essentials of Chemistry 1B (6 UOC)

Students interested in computational methods or computer science:

COMP1511 Introduction to Programming (6 UOC)

**Recommended Level 2 Electives**

Students in this major are recommended to include at least 6 UOC from the following among their electives:

MATH2241 Intro to Atmos & Oceans (6 UOC)

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**Enrolment Disclaimer**

You are responsible for ensuring you enrol in courses according to your program requirements. myUNSW enrolment checks that you have met enrolment requirements such as pre-requisites for individual courses but not that a course will count towards your program requirements. Do not assume that because you have enrolled in a course that the course will be credited towards your program.
Additional Information

Honours

Students completing a major in Applied Mathematics may be eligible to undertake Honours in Applied Mathematics, Pure Mathematics, or Statistics.

Please consult with staff from the School of Mathematics and Statistics.
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)
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Authorised by Deputy Vice-Chancellor (Academic)
CRICOS Provider Code 00098G
ABN: 57 195 873 179