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.
**Faculty**
Faculty of Science

**School**
School of Mathematics & Statistics

**Study Level**
Undergraduate

**Minimum Units of Credit**
90

**Specialisation Type**
Major
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
Level 1 Computer Science Elective

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

any level 1 Computer Science course

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

MATH3101  |  6 UOC
Computational Mathematics

MATH3121  |  6 UOC
Mathematical Methods and Partial Differential Equations

MATH3161  |  6 UOC
Optimization

MATH3171  |  6 UOC
Linear and Discrete Optimization Modelling

MATH3201  |  6 UOC
Dynamical Systems and Chaos

MATH3261  |  6 UOC
Fluids, Oceans and Climate

MATH3311  |  6 UOC
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

BAB1201 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)

**Enrolment Disclaimer**

Unless advised otherwise by your program authority, you should follow the rules for the handbook for the year you commenced your program. You are also 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.
**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