

MATHEMATICS

UNDERGRADUATE COURSES

- ▶ Bachelor of Science
- ▶ Bachelor of Science Advanced (Honours) – Research
- ▶ Bachelor of Science Advanced (Honours) – Global Challenges
- ▶ 11 Double Degrees with a Bachelor of Science
- ▶ Bachelor of Applied Data Science
- ▶ Bachelor of Applied Data Science Advanced (Honours)

APPLIED MATHEMATICS



Applied mathematics is concerned with using mathematical techniques and models to obtain practical solutions to concrete problems. This may help explain observations, or predict what may happen in the future. A key feature of applied mathematics is its emphasis on the mathematical techniques and approaches used, and what they are able to reveal about each application, rather than a detailed understanding of the application area itself.

FINANCIAL AND INSURANCE MATHEMATICS



Financial and insurance mathematics teaches the mathematical and statistical techniques for understanding and assessing risk in insurance and financial markets. You will be able to determine the likelihood of specific outcomes and develop strategies that allow businesses and governments to either pursue new business opportunities or insure against risks.

MATHEMATICS



Mathematics is the universal language used to describe, model, understand and even create aspects of the world around us. Mathematics examines numerical, algebraic and analytical structures, the development of quantitative methods essential for the practice and development of science, engineering, economics and other fields.

MATHEMATICAL STATISTICS



Statistics is the branch of mathematics that captures the interplay of data and theory. There are two important parts of statistics – the mathematical theory and the applications of this theory in the real world that allow the making of informed decisions in the face of uncertainty. Statistics turns numerical data into useful – even gripping – information about anything from the effect of a new cancer drug, to our economic performance, to changes in how we partner and reproduce.

PURE MATHEMATICS



Pure mathematics deals with the abstract, the rigour and the beauty of perfection. Although pure mathematics is motivated by reasons other than applications, it often becomes the basis for applied mathematics to solve the most concrete problems. The theory of prime numbers, for example, is fundamental to the security systems in electronic banking.

COMPUTATIONAL SCIENCE



Computational science is the construction and application of mathematical models, simulation, numerical methods and data analysis techniques to solve scientific problems using computers. This includes understanding the interactions of sub-atomic particles, the processes that shape stars and galaxies, the molecular basis of life, through to the processes that govern outbreaks of epidemics, the sustainability of ecosystems and the dynamics of the biosphere. (Taught by the Faculty of IT.)

UNIQUE OPPORTUNITIES

Mathematics Learning Centre

A drop-in centre for one-on-one mathematics support.

Industry Internships

Apply your skills in the workplace to gain some professional experience.

International Experiences

Study overseas through an exchange, study abroad or the Global Immersion Guarantee.

Gender Equity in Maths (GEMs) Program

A network of mentors and students supporting underrepresented genders.

Research Projects

Work closely with an academic supervisor to carry out an independent research project.

Society for Physics, Astro and Maths (SPAM)

Supplement your studies by joining the dedicated student-run club.

EXAMPLE FIRST YEAR COURSE MAP

MATHEMATICS

Semester 1	MTH1020 OR MTH1030 (OR MTH1035 – depending on VCE background)	A science sequence	MAT1830 OR SCI1022 OR STA1010 OR Science elective	Another science sequence OR Science elective OR Non-science elective
Semester 2	MTH1030 (if not taken) OR MTH2010 (OR MTH2015 – depending on VCE background)	A unit to complete that science sequence	SCI1000 Science communication to influence change	A unit to complete that science sequence OR Science elective OR Non-science elective

Other science sequences:

Biology; Chemistry; Computational Science; Earth Atmosphere and Environment; Physics; or Psychology.



Scan here for all other first year example course maps.

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POTENTIAL CAREERS

- ▶ Atmospheric scientist
- ▶ Biostatistician/ data analyst
- ▶ Business analyst
- ▶ Business operations
- ▶ Computational biologist
- ▶ Computational mathematician
- ▶ Computer software developer
- ▶ Consultant business systems
- ▶ Data mining analyst
- ▶ Data scientist
- ▶ Epidemiologist
- ▶ Financial consultant
- ▶ Financial market analyst
- ▶ Foreign exchange trader
- ▶ Investment analyst
- ▶ IT professional
- ▶ Model developer
- ▶ Market statistician
- ▶ Mathematical modeller
- ▶ Meteorologist
- ▶ National security analyst
- ▶ Oceanographer
- ▶ Programmer
- ▶ Project manager
- ▶ Quantitative analyst
- ▶ Risk manager
- ▶ Statistician
- ▶ Software developer
- ▶ Technology consultant
- ▶ Web developer



MARDI

Degree: Bachelor of Applied Data Science

Applied studies: Ecology and Conservation Biology

Job: Data Analyst at McGrathNicol



LACHLAN

Degree: Bachelor of Science/Bachelor of Computer Science

Majors: Mathematics and Data Science

Minors: Mathematical Statistics and Physics

Job: Consultant – Forensic Data Analytics at KPMG



Scan here for the full school brochure.



Your Essential Guide to Monash Science

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