Bachelor of Science (Mathematics)

Mathematics teaches you to think logically and approach problems in analytical and creative ways.

Mathematics graduates apply their problem-solving skills to a wide variety of fields, including banking and finance; environmental modelling (resources, biodiversity, weather and climate); information security (coding, cryptography); and engineering (fluid mechanics, optimising industrial processes).

This program focuses on applying maths to real-world problems to enhance your employment prospects. Theory is linked to practical projects and applied to real scenarios. You'll make practical use of industry-relevant computer software packages.

RMIT differs from many universities as you are enrolled in a mathematics program from the first day, as opposed to a generalist science degree.

You'll be well supported by a peer-mentoring system, and many of our final-year students get a head start in the job market by doing an industry placement.

This program is ideal if you're interested in:

- using numbers and formulas to solve problems
- finding logical and creative solutions
- advanced numerical skills that will set you apart from graduates in business or commerce.

Industry connections

During your third year you'll undertake a project linked directly to industry. Many students are later employed by the organisation with which they do their project.

In recent years, industry projects have been arranged with VicRoads, Victorian Institute of Sport (Melbourne Vixens), Badminton Australia, Bureau of Meteorology, Australian Bureau of Statistics, National Australia Bank, Dairy Innovation Australia, Deloitte Australia, Florey Institute of Neuroscience and Mental Health, Crown Melbourne Limited, Red Cross Blood Bank, The Smith Family, and Biarri Commercial Mathematics, to name just a few.

Career outlook

The outlook for mathematics graduates is excellent. Mathematics graduates work as analysts and modellers in many areas of business, commerce, government, teaching, computer and manufacturing industries.

Mathematics has been identified as a critical area in science and the government has forecast that the demand for mathematics graduates will grow by 3.5% each year from 2006 –2013. CSIRO and other agencies have reported difficulties in filling mathematics positions. The statistics indicate that as a mathematician you will be entering the workforce as a highly sought-after employee.

Some of the areas mathematics graduates find work in include:

- Environment: Studies of the environment require modelling of the abundance and location of plants and animals, the spread of pollution from its sources and the possible effects of changes in human activities
- Business: The future of many industries and their employees depends on improvements in the efficiency with which they are produced and delivered. Graduates build the models which allow companies to meet these demands
- Industry: Mathematics graduates work with engineers to model the physical processes used in industry, e.g. cooking, coating, cutting, rolling, and so on, so that manufacturers are able to produce better quality products
- Information Security: In an increasingly networked world in which danger is no more than a mouse-click away, graduates work with computer scientists to secure companies’ vital systems and data.

Professional recognition

Graduates are eligible to apply for graduate membership to the Australian Mathematical Society.

International opportunities

You can do one or more semesters at an overseas institution through Education Abroad at more than 120 partner universities.
# Program structure

You will undertake core studies in applied mathematics, together with several courses from one of four specialisations:

1. environmental modelling
2. finance
3. information security
4. statistics.

## Year 1
You’ll study the basics of calculus, statistics, discrete mathematics, mathematical programming and professional practice.

## Years 2 and 3
You’ll continue with more advanced applied mathematics courses. These will include mathematical modelling and computational methods alongside fundamental mathematical techniques — those needed by professional mathematics graduates.

It’s at this stage you’ll undertake your chosen specialisation.

At each year level, you’ll participate in a work-integrated learning course. This typically involves teamwork on a real-world industry problem.

### Program elective
- Advanced Mathematical Modelling
- Algebra for Information Security
- Business Finance
- Coding for Reliable Communications
- Data Preparation for Analytics
- Forecasting
- Linear Models and Design of Experiments
- Numerical Solutions of DEs
- Operations Research 1
- Sampling and Quality Control
- Statistical Inference

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<thead>
<tr>
<th>Year 1</th>
<th>Calculus and Analysis 1</th>
<th>Introduction to Probability and Statistics</th>
<th>Mathematical Computing</th>
<th>Calculus and Analysis 2</th>
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<tbody>
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<td>Basic Statistical Methodologies</td>
<td>Discrete Mathematics</td>
<td>Modelling with Algebra</td>
<td>Problem Solving and Algorithms</td>
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<tr>
<th>Year 2</th>
<th>Mathematical Modelling</th>
<th>Linear Algebra and Vector Calculus</th>
<th>Industrial Applications of Mathematics and Statistics 1</th>
<th>Scientific Computing</th>
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<tr>
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<td>Modelling with Differential Equations</td>
<td>Computational Mathematics</td>
<td>Program elective</td>
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<tr>
<th>Year 3</th>
<th>Real and Complex Analysis</th>
<th>Industrial Applications of Mathematics and Statistics 2</th>
<th>Program elective</th>
<th>Program elective</th>
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<td>Program elective</td>
<td>University elective</td>
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<td>University elective</td>
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- Compulsory courses
- Program electives
- University electives

## Entrance requirements
Successful completion of an Australian Year 12 senior secondary certificate of education or equivalent.

## Prerequisites
Units 3 and 4 – a study score of at least 20 in one of Mathematical Methods (CAS) or Specialist Mathematics; and a study score of at least 30 in English (ESL) or at least 25 in any other English.

## Additional information
Form: Non-Year 12 applicants may submit additional information if they would like it to be considered. For semester 1 intake, this can be completed through the VTAC Personal Statement online. For semester 2 intake, this can be completed through the personal statement in the Apply Direct application.