

## Courses at University

Basic undergraduate degree - "*Bachelor's degree*", e.g., Bachelor of Science (BSc), Bachelor of Arts (BA), B.Eng., etc.

Various degrees offered by different *faculties*. Faculties are groupings of academic Departments or Schools, normally with common interests.

At Adelaide, there are 5 faculties: Professions, Science, Health Sciences, Humanities & Social Sciences, & Engineering, Computer and Mathematical Sciences.

Bachelor's degrees are normally 3 years of study, (Engineering is 4 years).

To complete degree, need total of 72 *units*. (96 for Engineering). Normally take 24 units per year; 12 units per semester.

Each subject is usually 3 units, so standard load is 4 subjects per semester.

*Note:* In addition to reaching the 72 units, there are other requirements ("the degree rules") such as on the number of units obtained at each level.

*Note:* Sometimes a degree is called a *course*, and sometimes it is called a *program*. Also, sometimes a subject is called a course. And sometimes units are called *points*. It can all be quite confusing.

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There are usually 12 weeks per semester.

In first year, a subject will usually involve 4 hours of lectures and 1 hour of tutorials each week; some subjects have laboratory sessions.

In second year, subjects usually involve 3 hours of lectures per week and a tutorial or lab each week or fortnight.

In third year, subjects usually involve 5 hours of lectures and 1 tutorial per fortnight.

Depending on which degree, the choice of subjects can be very broad or very restrictive.

In Mathematics, there are 3 degrees: Bachelor of Mathematical & Computer Sciences (BMCompSc), Bachelor of Mathematical Sciences (BMAcSc) and the Bachelor of Mathematical Sciences (Advanced) BMAcSc(Adv). First is very flexible; second is fairly prescriptive; last is a bit more prescriptive still.

The BMAcSc(Adv) is a very new degree (first offered this year).

It should attract students with strong mathematical abilities and interests, and, we hope, will be very attractive to potential employers.

It should also be an excellent launching pad for postgraduate studies in mathematical sciences.

There are also strong connections to degrees offered by other Schools and Faculties. E.g., B.Fin., B.Comp.Sci., B.Teaching.

Mathematics also provides foundational studies for many other degrees; E.g., BSc, B.Econ., B.Eng.

Within Mathematics, there are 3 broad areas of specialisation ("disciplines"): Pure Maths, Applied Maths, and Statistics.

Pure Maths is concerned mainly with *theory*; Applied Maths with the application of mathematics to "real-life" problems; Statistics is concerned with modelling and analysing of data and their interpretations.

Choice of subjects is determined by many factors: personal preference; advice from others; career goals; etc. Making good choices is very important.

For those who do not have specific career goals in mind, it is usual to start out with a broad choice of subjects and subsequently become more specialised.

E.g. (NPB, BSc ANU, previous millenium):

- First Year: Physics, Chemistry, Pure Maths, Applied Maths.
- Second Year: Physics, Theoretical Physics, Pure Maths.
- Third Year: Theoretical Physics, Pure Maths.
- (Fourth Year - Honours): Pure Maths.

### *Honours Degrees:*

Most degrees allow students to do a fourth year of specialised study called *Honours*. Normally students work in just one area of specialisation, and the work involves both lectures and project work (thesis/dissertation): a training in undertaking research.

Undertaking such research training is essential to be able to go on to higher degrees, (PhD, DSc, etc).

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(There are other pathways to higher degrees such as Masters degrees, and these have much in common with Honours. The key is the training in undertaking research.

Students learn about the various possibilities as they progress through their undergraduate degrees.)

Another variation on basic Bachelor's degree: *double degrees*.

A double degree involves undertaking 2 undergraduate degrees essentially at the same time.

In the first two years, subjects taken normally count towards both degrees. In the third year, studies are normally focussed on one area to complete one of the degrees. In the fourth year, the subjects required to complete the second degree are taken.

(A double degree with Engineering will normally take 5 years.)

Double degrees involving a vocational degree (e.g., Engineering, Finance, Teaching) together with Mathematics are very popular. They are very attractive to prospective employers.

There is considerable flexibility in the process:

- Students can sign up for a double degree during (or after) their first year at university;
- Students can drop one of the two parts of their degree;
- It is possible to switch between degrees if the appropriate rules are satisfied.

*Example:* B.Teaching/B.Maths&CS double degree. (This example would be for a person aiming to teach upper level mathematics in high school, and who did Year 12 French and wants to continue with it.)

*Example:* B.Teaching/BMaCompSc double degree.

	Semester 1	Semester 2
Year 1	Schools & Policy Mathematics 1A Intro to Fin. Math. French 1SA	Primary School Interaction Mathematics 1B Stat. Analysis & Modelling French 1SB
Year 2	Issues in Contemp. Educn. Algebra Multivar.& Comp. Calculus French 2SA	Prof. Practice & Research Real Analysis Opt. & Op. Res. French 2SB
Year 3	Reflective Practice Complex Analysis Math. Statistics Groups & Rings	Secondary School Interaction Communication Skills Geometry of Surfaces Fin. Modelling
Year 4	Teaching Practice (Other Teaching studies)	Advanced Education Studies (Other Teaching studies)

*Note:* The main Mathematics subjects in first year are Maths 1M, Maths 1A, Maths 1B and Statistical Analysis & Modelling I.

Entry into Maths 1A requires Maths Studies and Specialist Maths in high school.

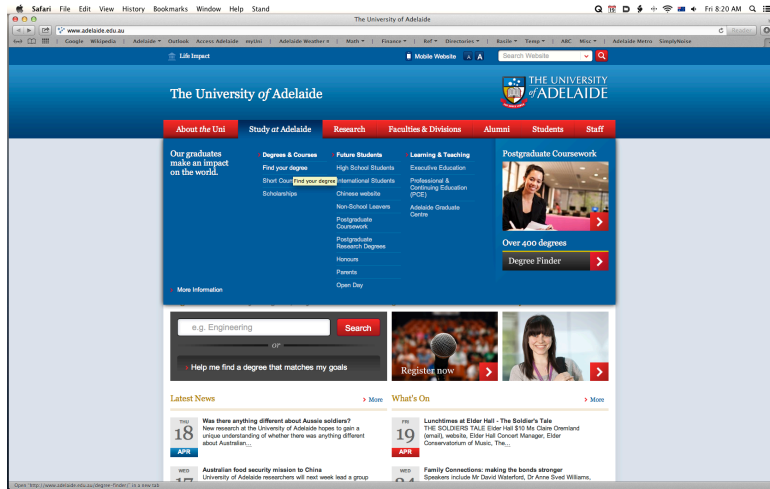
Students with just Maths Studies (or equivalent) in high school enrol in Maths 1M in their first semester, then continue on with Maths 1A and subsequently 1B.

One of Maths 1M or Maths 1A is required to take Statistical Analysis & Modelling.

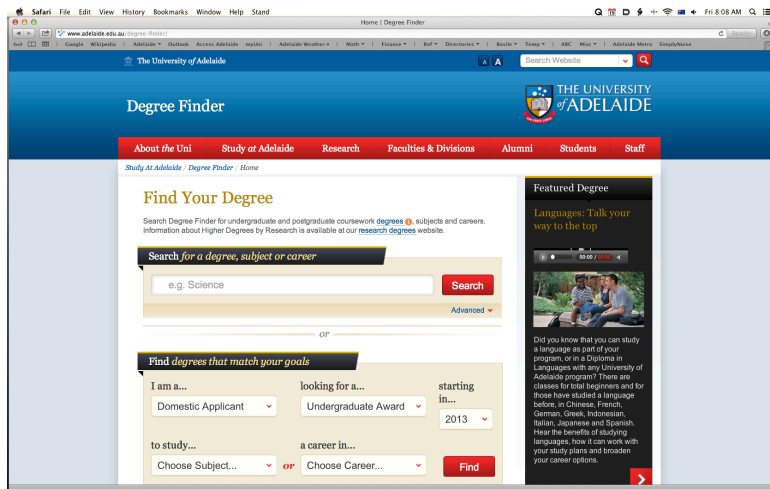
Maths 1B is offered over the summer for students wanting to move ahead more rapidly.

# Getting more information

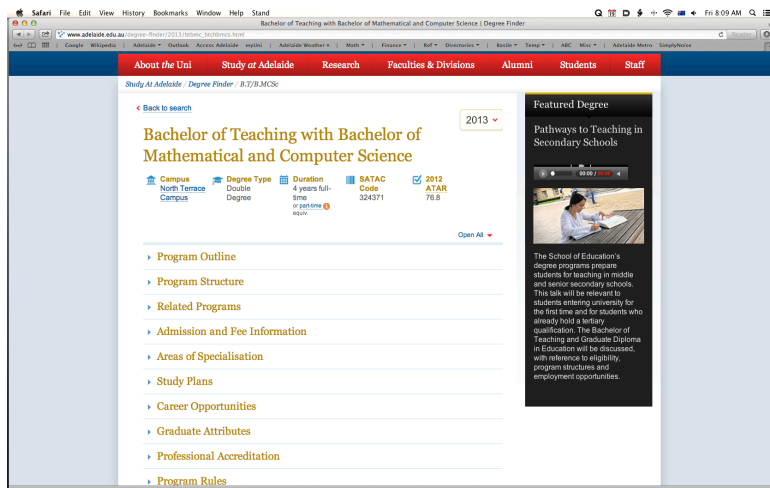
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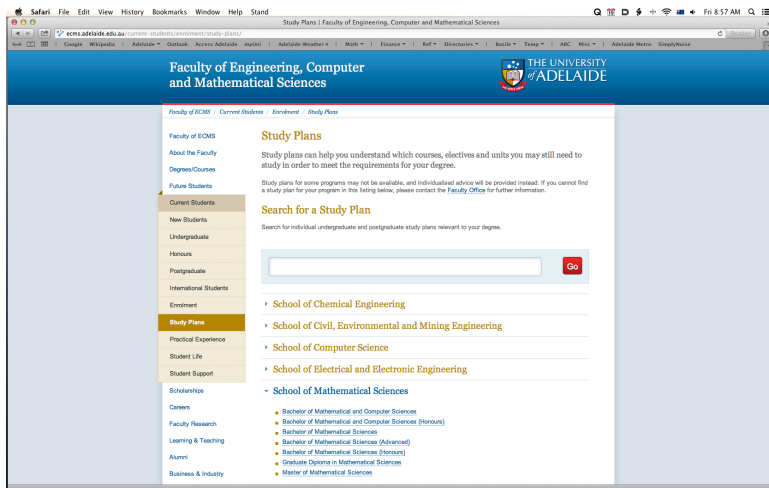
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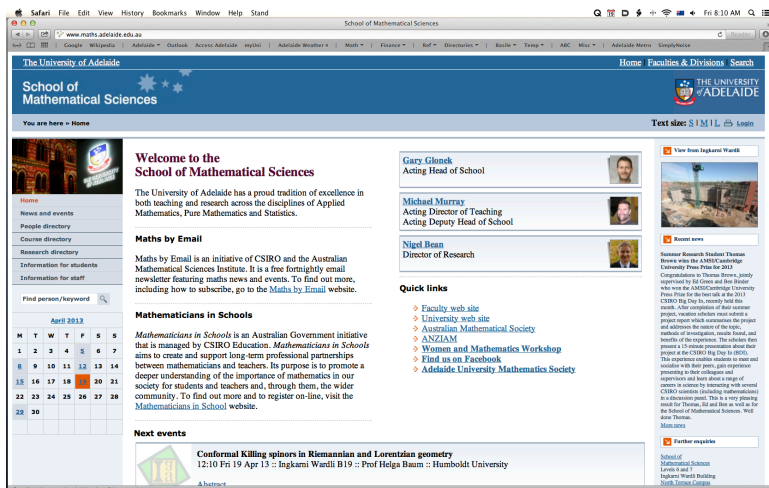
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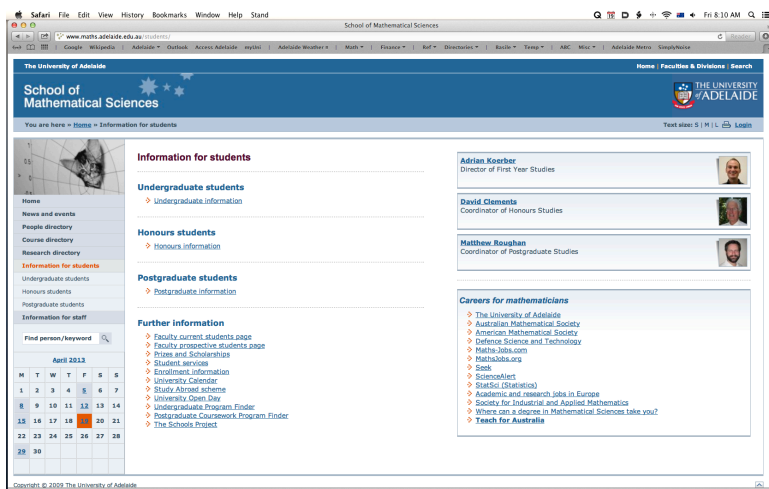
<http://ecms.adelaide.edu.au/current-students/enrolment/study-plans/>



<http://www.maths.adelaide.edu.au>



<http://www.maths.adelaide.edu.au/students>



http://www.maths.adelaide.edu.au/courses

The screenshot shows the 'Course directory' page on the School of Mathematical Sciences website. The page is organized into several sections:

- Home**: Includes 'News and events', 'People directory', 'Course directory', 'By discipline', 'By level', 'Research directory', and 'Information for students'.
- Course directory**: A central navigation area with links for 'Courses by discipline' (Mathematical Sciences, Applied Mathematics, Pure Mathematics, Statistics), 'Courses by level' (Level I, Level II, Level III, Level IV and Honours), and 'Courses by name' (Alphabetical list of courses at all levels).
- Further information**: Links to 'Undergraduate course planner' and 'Graduate course planner'.
- Staff**: A list of key staff members:
  - Adrian Kueber**: Director of First Year Studies
  - Susan Betts**: Course Advisor
  - David Clements**: Coordinator of Honours Studies
- Calendar**: A monthly calendar for April 2013, with the 18th highlighted.
- Footer**: Copyright information for 2009 and contact details for the School of Mathematical Sciences.

http://www.maths.adelaide.edu.au/courses/level.html

The screenshot shows the 'Courses by level' page, detailing the structure of the undergraduate program:

- Level I courses**: A table listing 10 courses, including 'Applications of Quantitative Methods in Finance I', 'Introduction to Discrete Mathematics', 'Mathematics for Information Technology', 'Mathematics IA', 'Mathematics IB', 'Mathematics 2B', 'Statistical Analysis and Modelling I', 'Statistical Practice I (Data Science)', and 'Statistical Practice I (Data Science) (Honours)'. Each entry includes the semester and level.
- Level II courses**: A table listing 10 courses, including 'Statistics', 'Differential Equations', 'Engineering Mathematics IA', 'Engineering Mathematics IB', 'Complex Numbers and Calculus', 'Numerical Methods', 'Optimization and Operations Research', 'Probability and Statistics', 'Real Analysis', and 'Statistical Modelling and Inference'. Each entry includes the semester and level.
- Level III courses**: A table listing one course: 'Special Honours III'.
- Recent news**: A section titled 'View from England West' with a photo and a 'Recent news' link.
- Further enquiries**: Contact information for the School of Mathematical Sciences.

http://www.maths.adelaide.edu.au/courses/19786

The screenshot shows the detailed page for the 'Mathematics IA' course (ID 19786):

- Year**: 2013
- Semester**: 1, 2
- Level**: 1
- Units**: 3
- Description**: A paragraph explaining that the course, together with MATHS 1912 Mathematics IB, provides an introduction to the basic mathematical concepts and techniques of calculus, linear algebra and probability, emphasizing their inter-relationships and applications to the physical world.
- Objective**: A paragraph stating the course aims to provide an introduction to the basic concepts and techniques of calculus and linear algebra, emphasizing their inter-relationships and applications to the physical world.
- Content**: A list of topics covered, including: Calculus (functions of one variable, differentiation, the definite integral, and techniques of integration), Algebra (Linear equations, matrices, the real vector space determinants, optimization, eigenvalues and eigenvectors, applications of linear algebra).
- Staff**: A list of lecturers:
  - Adrian Kueber**: Lecturer for this course
  - Padraig Bokmal**: Lecturer for this course
  - David Clements**: Lecturer for this course
- Delivery**: 56 hours lectures, tutorials and computer practicals.
- Assessment**: Ongoing assessment 30%, exam 70%.
- Graduate attributes**: A list of five attributes: Applying mathematical knowledge (1), Interpreting data and drawing conclusions (2), Communicating mathematical problems (3), Employing solving skills (4), and Exhibiting an academic environment (5).
- Linkage post**: A note stating that entry to Mathematics IA requires a minimum of a C- in Mathematical Studies and a C- in Specialist Mathematics.
- Linkage present**: A section for related courses.