

2009 Course Summary Sheet

■ Bachelor of Mathematics (MA54)

This document will assist you with the selection of your study program and completion of your enrolment. Other useful information can be found on the Student Services website studentservices.qut.com/, which can also be accessed via the Online Enrolment portlet.

Location: Gardens Point campus

Course Duration: 3 years full-time, or 6 years part-time equivalent

Course Commencement: Domestic Students: Course commences in February
International Students: Course commences in February and July

Total Credit Points: 288

Course Coordinator: Dr Glenn Fulford, Room O622 Gardens Point, Phone 07 3138 5196, Email: g.fulford@qut.edu.au
Assistant Course Coordinator: Dr Dann Mallet, Room O512 Gardens Point, Phone 07 3138 2354, Email: dg.mallet@qut.edu.au

Assumed Knowledge: An exit assessment of at least Sound Achievement in four semesters of both Senior Mathematics B and English.
Recommended: Senior Mathematics C.

Professional recognition

Membership of the Australian Mathematical Society, the Statistical Society of Australia Inc and the Australian Society for Operations Research is available. This course has accreditation from the Australian Mathematical Society.

Enrolment information

Students are encouraged to contact the Course Coordinator for advice on enrolment and other issues. Commencing students with prior studies, either at QUT or at another university, should contact the Course Coordinator for advice and apply to QUT for possible advanced standing. If you haven't completed Senior Mathematics B or equivalent, or if you haven't studied mathematics in recent years, or if you are from interstate or overseas, you should contact the course Coordinator to discuss your enrolment program. Part-time students need to be able to attend day-time classes.

Important Note: Please ensure you select the correct teaching period (semester), class and location code for all units you are enrolled in. All units in this course have a location of Gardens Point and a class of Internal.

Lecture, tutorial and practical times

Under your Personal Profile on QUT Virtual you will find Class Allocations. Your lecture times will be allocated automatically, however you will need to select tutorial or practical times depending upon the units selected. For mathematics units, practical is the name given to a session in a computer laboratory.

Limits on grades of 3: A new policy concerning grades of 3 comes into effect from 1 January 2009 (QUT MOPP C/9.2). With effect from this date grades of 3 will no longer be considered a conceded or low pass but will be classified as a fail grade. Any grades of 3 awarded prior to 1 January 2009 will retain the conceded pass status and will be counted for graduation purposes up to the maximum number of grades of 3 permitted for your course. Grades of 3 incurred in units that commence after 1 January 2009 will not count towards your degree. The maximum number of pre-2009 grades of 3 permitted for this course can be found [here](#).

Course Structure

Students must complete at least 192 credit points (*16 twelve credit point units*) of Mathematics units according to the following requirements:

• Level 1 Mathematics Units

Students must complete the following Level 1 Mathematics units:

MAB100 Mathematical Sciences 1A*
MAB101 Statistical Data Analysis 1
MAB111 Mathematical Sciences 1B
MAB112 Mathematical Sciences 1C
MAB210 Statistical Modelling 1
MAB220 Computational Mathematics 1

* For students who do not have an exit assessment of at least Sound Achievement in four semesters of both Senior Mathematics B and Senior Mathematics C.

- **Level 2 and 3 Mathematics Units**

At least 120 credit points (*10 twelve credit point units*) must be taken from Level 2 and Level 3 Mathematics units with at least 48 credit points (*4 twelve credit point units*) from Level 3 Mathematics units.

Students must complete:

MAB311 Advanced Calculus

MAB312 Linear Algebra

Other Units

Up to a maximum of 96 credit points may be taken as electives with not more than 48 credit points from first level units.

Note: A first level unit is classified as a unit that is normally taken in the first year of a single degree. Examples of first level units are BSB1xx units, INB101-INB104, SCB1xx units, PQB2xx units. Please check with your Course Coordinator if you would like to take language units or units from faculties other than Business, Information Technology or Science so that you can be advised on the correct unit(s) in which to enrol.

Suggested Program for February Entry

You are required to enrol in units for both Semester 1 and Semester 2. Full-time students usually enrol in four units per semester. Part-time study is two or one units per semester.

Students with an exit assessment of at least Sound Achievement in both Senior Mathematics B and Senior Mathematics C (or equivalent)

Year 1, Semester 1

MAB101 Statistical Data Analysis 1

MAB111 Mathematical Sciences 1B

MAB112 Mathematical Sciences 1C

ONE additional unit from:

MAB220 Computational Mathematics 1 (*can be taken in Semester 2*)

BSB110 Accounting

SCB110 Science Concepts and Global Systems

Other first level elective unit (*see below and later in document for other suggestions*)

Year 1, Semester 2

MAB210 Statistical Modelling 1

THREE additional units from:

MAB220 Computational Mathematics 1 (*if not taken in Semester 1*)

MAB281 Mathematics for Computer Graphics

MAB313 Mathematics of Finance

MAB422 Mathematical Modelling

MAB480 Introduction to Scientific Computation

BSB113 Economics

SCB111 Chemistry 1

SCB112 Cellular Basis of Life

PQB250 Mechanics and Electromagnetism

PQB251 Waves and Optics

Other first level elective units (*see later in document for other suggestions*)

Year 2, Semester 1

MAB311 Advanced Calculus

MAB312 Linear Algebra

TWO additional units from mathematics units or elective units

Year 2, Semester 2

FOUR units from mathematics units or elective units (see course structure)

Year 3, Semester 1

FOUR units from mathematics units or elective units (see course structure)

Year 3, Semester 2

FOUR units from mathematics units or elective units (see course structure)

Students with an exit assessment of at least Sound Achievement in Senior Mathematics B only (or equivalent)

Year 1, Semester 1

MAB100 Mathematical Sciences 1A

MAB101 Statistical Data Analysis 1

TWO additional units from:

BSB110 Accounting

BSB113 Economics

SCB110 Science Concepts and Global Systems

SCB111 Chemistry 1

SCB112 Cellular Basis of Life

Other first level elective unit (*see later in document for other suggestions*)

Year 1, Semester 2

MAB111 Mathematical Sciences 1B

MAB112 Mathematical Sciences 1C

MAB210 Statistical Modelling 1 (*can be taken in Year 2, Semester 1 and replaced here by an elective unit*)

MAB220 Computational Mathematics 1

Year 2, Semester 1

MAB311 Advanced Calculus

MAB312 Linear Algebra

TWO additional units from mathematics units or elective units

Year 2, Semester 2

FOUR units from mathematics units or elective units (see course structure)

Year 3, Semester 1

FOUR units from mathematics units or elective units (see course structure)

Year 3, Semester 2

FOUR units from mathematics units or elective units (see course structure)

Mathematics Units

You should *not* enrol in Mathematics units other than those listed below. If you have already completed Mathematics units at a higher educational institution prior to enrolling in MA54 you should contact the Course Coordinator.

Level 1 Mathematics Units

Unit Code	Unit Name	Credit Points	Semester Offered	Prerequisite(s)/Co-requisite(s)/ Incompatible Units
MAB100	Mathematical Sciences 1A	12	1,2,SUM	A grade of at least Sound Achievement in Senior Mathematics B (or equivalent) <i>Incompatible with HA in Senior Mathematics C, prior pass in MAB131, MAB180</i>
MAB101	Statistical Data Analysis 1	12	1,2, SUM-2	A grade of at least Sound Achievement in Senior Mathematics B (or equivalent) <i>Incompatible with EFB101, MAB135, MAB136, MAB137, MAB138, MAB233</i>
MAB111	Mathematical Sciences 1B	12	1,2	MAB100 Mathematical Sciences 1A or Sound Achievement in Senior Mathematics C (or equivalent) <i>Incompatible with MAB131 Engineering Mathematics 1A</i>
MAB112	Mathematical Sciences 1C	12	1,2	MAB100 Mathematical Sciences 1A or Sound Achievement in Senior Mathematics C (or equivalent) Co-requisite: MAB111 Mathematical Sciences 1B <i>Incompatible with MAB132</i>
MAB210	Statistical Modelling 1	12	1, 2	MAB100 Mathematical Sciences 1A or Sound Achievement in Senior Mathematics C (or equivalent) Co-requisite: MAB112 Mathematical Sciences 1C
MAB220	Computational Mathematics 1	12	1,2	Sound Achievement in Senior Mathematics B or MAB105 Co-requisite: MAB100 Mathematical Sciences 1A if you don't have Sound Achievement or better in Senior Mathematics C

Level 2 Mathematics Units

Unit Code	Unit Name	Credit Points	Semester Offered	Prerequisite(s)/Co-requisite(s)/
MAB311	Advanced Calculus	12	1	MAB111 Mathematical Sciences 1B + MAB112 Mathematical Sciences 1C
MAB312	Linear Algebra	12	1	MAB111 Mathematical Sciences 1B + MAB112 Mathematical Sciences 1C
MAB313	Mathematics of Finance	12	2	MAB100 Mathematical Sciences 1A or Sound Achievement in Senior Mathematics C (or equivalent) Co-requisite: MAB111 Mathematical Sciences 1B
MAB314	Statistical Modelling 2	12	1	MAB112 Mathematical Sciences 1C + MAB210 Statistical Modelling 1
MAB315	Operations Research 2	12	1	MAB112 Mathematical Sciences 1C + MAB210 Statistical Modelling 1
MAB413	Differential Equations	12	2	MAB311 Advanced Calculus or MAB312 Linear Algebra
MAB414	Applied Statistics 2	12	2	MAB101 Statistical Data Analysis 1 + MAB111 Mathematical Sciences 1B
MAB420	Computational Mathematics 2	12	2	MAB220 Computational Mathematics 1 + MAB312 Linear Algebra

Level 2 Mathematics Units (Continued)				
Unit Code	Unit Name	Credit Points	Semester Offered	Prerequisite(s)/Co-requisite(s)/
MAB422	Mathematical Modelling	12	2	MAB111 Mathematical Sciences 1B + MAB112 Mathematical Sciences 1C
MAB461	Discrete Mathematics	12	2	MAB112 Mathematical Sciences 1C
MAB480	Introduction to Scientific Computation	12	2	MAB112 Mathematical Sciences 1C <i>Recommended:</i> <i>MAB210 Statistical Modelling 1 or MAB220 Computational Mathematics 1</i> <i>Incompatible with ITB849 Introduction to Technical Computing</i>
MAB481	Visualisation and Data Analysis	12	1 Not offered after 2009	MAB101 Statistical Data Analysis 1 + MAB111 Mathematical Sciences 1B + MAB480 Introduction to Scientific Computation or ITB003 Object Oriented Programming (or ITB111 Software Development 1) <i>Recommended: MAB112 Mathematical Sciences 1C</i>

Level 3 Mathematics Units – at least four units required

Unit Code	Unit name	Credit Points	Semester Offered	Prerequisite(s)
MAB521	Applied Mathematics 3	12	1	MAB311 Advanced Calculus
MAB522	Computational Mathematics 3	12	1	MAB311 Advanced Calculus + MAB420 Computational Mathematics 2
MAB524	Statistical Inference	12	2*	MAB314 Statistical Modelling 2
MAB525	Operations Research 3A	12	1	MAB315 Operations Research 2
MAB533	Statistical Techniques	12	1	MAB210 Statistical Modelling 1 + MAB414 Applied Statistics 2
MAB536	Time Series Analysis	12	1*	MAB101 Statistical Data Analysis 1 + MAB314 Statistical Modelling 2
MAB613	Partial Differential Equations	12	2	MAB311 Advanced Calculus + MAB413 Differential Equations
MAB623	Financial Mathematics	12	2	MAB313 Mathematics of Finance + MAB311 Advanced Calculus <i>Highly Recommended: EFB210 Finance 1</i>
MAB624	Applied Statistics 3	12	2	MAB314 Statistical Modelling 2 + MAB414 Applied Statistics 2
MAB625	Operations Research 3B	12	2	MAB315 Operations Research 2
MAB640	Industry Project	24	2	Approval from unit coordinator. Corequisite: At least 36 credit points from Level 3 Mathematics units
MAB672	Advanced Mathematical Modelling	12	1	MAB312 Linear Algebra + MAB422 Mathematical Modelling <i>Recommended: MAB413 Differential Equations</i>
MAB681	Advanced Visualisation and Data Analysis	12	2 Not offered after 2009	MAB481 Visualisation and Data Analysis <i>Recommended: MAB480 Introduction to Scientific Computation</i>

* It is envisaged that these units will change semester from 2010.

Other Units

Up to a maximum of 96 credit points (*8 twelve credit point units*) can be taken from other units, with not more than 48 credit points (*4 twelve credit point units*) from first level units. A first level unit is classified as a unit that is normally taken in the first year of a single degree.

Other Unit – First Level

This unit can only be taken in MA54 after recommendation from the Course Coordinator. This unit cannot be included in the minimum of 16 mathematics units required for the course.

Unit Code	Unit Name	Credit Points	Semester Offered	Prerequisite(s)
MAB105	Preparatory Mathematics	12	1	Year 10 <i>Incompatible with HA in Senior Mathematics B, prior pass in MAB100, MAB111 MAB131, MAB180</i>

Other Unit – Advanced Level

This unit cannot be included in the minimum of 16 mathematics units required for the course, but can be counted as an elective.

Unit Code	Unit Name	Credit Points	Semester Offered	Prerequisite(s)
MAB281	Mathematics for Computer Graphics	12	2	SA in Senior Mathematics B or MAB105

First Level Science Units

This list does not include all first level science units. See the SC01 Bachelor of Applied Science course information for details on all first level and advanced level science units. These units are all 12 credit points.

Unit Code	Unit Name	Prerequisite(s)	Semester Offered
SCB110	Science Concepts and Global Systems	Nil	1
SCB111	Chemistry 1	Nil	1,2
SCB112	Cellular Basis of Life	Nil	1,2
SCB121	Chemistry 2	Nil	1,2
PQB250	Mechanics and Electromagnetism	MAB100 or Senior Mathematics C Corequisite: MAB111 and MAB112	2
PQB251	Waves and Optics	SA in Senior Mathematics B	2

Information Technology Units

Refer to IT23 Bachelor of Information Technology or your Course Coordinator for more information on information technology units.

First Level Business Units

These units are all 12 credit points and available Semester 1 and Semester 2 and may also be available in the summer (tuition fee payable). No more than four first level units can be included in your course.

Unit Code	Unit Name
BSB110	Accounting
BSB111	Business Law and Ethics
BSB113	Economics
BSB115	Management, People and Organisations
BSB119	Global Business
BSB124	Working in Business
BSB126	Marketing

Refer to BS05 Bachelor of Business or your Course Coordinator for more information on the units available for the various areas of business.

Other Areas

Units can be selected from other areas, for example, a language, psychology, arts, creative industries, engineering but you need to consult with the Bachelor of Mathematics Course Coordinator to ensure that you select the appropriate units for your area of interest and have the

flexibility in your program to cope with possible timetable clashes. Note: the initial unit for studying a language depends upon whether you have previous studies from school.

Prior Studies

If you have prior studies, please contact the Course Coordinator as you may be able to obtain credit. This is best done prior to the start of semester.