



MANSW's HSC Subject Selection Advice for Students

The MANSW Executive Committee has been concerned for some time about the decline in the number of students who complete Mathematics (2 Unit) for the HSC and the subsequent increase in the number of students doing Mathematics General or no mathematics in Years 11 and 12.

MANSW believes that there are many reasons for this trend. The members of the MANSW Executive Committee are working to address a number of these issues. One of these is the advice that students receive when they choose their senior subjects during Year 10 and then re-evaluate their decisions during Years 11 and 12.

In June 2015 MANSW published, for the first time, some advice about Mathematics General and Mathematics (2 Unit). A pdf version of this document is available from:

<http://www.mansw.nsw.edu.au/resources/public-resources>

It is accompanied by three online videos:

- An 18-minute explanation of some of the issues raised in the booklet, available here:
https://www.youtube.com/watch?v=eTyuvMu_v6o&feature=youtu.be
- A 4-minute interview with a student who accepted some questionable advice:
<https://www.youtube.com/watch?v=gveXUaUiv3I&feature=youtu.be>
- A 18-minute video by Associate Professor Leanne Rylands about the importance of choosing an appropriate level of mathematics to prepare for university studies:
<https://www.youtube.com/watch?v=n7JMwwWCwJs&feature=youtu.be>

Thank you to those schools that have already shared this information with their students. If the students in your school have not received this information, please consider sharing it with them.

In the time since this document was first published, The University of Sydney announced the introduction of prerequisites, starting in 2019. Students in Year 10 2016 and beyond will need to score a Band 4, 5 or 6 in Mathematics (2 Unit) in order to enter first year subjects in a wide range of economics, commerce, science and engineering degrees.

Please email projects@mansw.nsw.edu.au if you have any feedback on these publications or require additional information.

MANSW Executive Committee

April 2016



STUDYING MATHEMATICS FOR THE HSC AND BEYOND

Information for Students and Parents

The Mathematical Association of NSW (MANSW) is the not-for-profit professional body for mathematics educators of students of all ages. MANSW has compiled the following information to assist students in making the very important choice of mathematics course for Years 11 and 12.

Mathematics forms part of a 'well-rounded' education. It is not compulsory in Years 11 and 12, but MANSW believes that the study of mathematics at any level provides people with skills that can be applied to numerous situations.

Students are advised to choose a mathematics course that is appropriate to their interests and abilities and will provide a solid foundation on which to enter the workforce or further education.

The current options are:

Year 11 (Preliminary)	Year 12 (HSC)
No mathematics	No mathematics
Mathematics General	Mathematics General 1 or Mathematics General 2
Mathematics 2 Unit	Mathematics 2 Unit
Mathematics 2 Unit and Mathematics Extension 1	Mathematics 2 Unit and Mathematics Extension 1
Mathematics 2 Unit and Mathematics Extension 1	Mathematics 2 Unit and Mathematics Extension 1 and Mathematics Extension 2

Students who are intending to go to university to study finance or any kind of STEM degree (Science-Technology-Engineering-Mathematics) should choose at least Mathematics 2 Unit and possibly include Mathematics Extension 1 in Years 11 and 12.

Mathematics General will not prepare you for a Science, Medicine, Engineering or Mathematics degree.

Some universities offer mathematics bridging courses or Foundation Mathematics for students who have not studied enough mathematics at school. These courses are advertised on the websites of the universities and are typically completed in the first year of university. Students who do bridging or foundation courses in their first year accrue extra fees, spend additional years at university and consequently may suffer a loss of income.

Students who complete Mathematics 2 Unit or Mathematics Extension 1 in Years 11 and 12 are better equipped to deal with university courses with mathematical requirements.

Students should consult their teachers, parents and /or careers advisor before choosing options for Years 11 and 12.

Students are advised to refer to the University Admission Centre (UAC) guide to ascertain the 'assumed knowledge' and 'recommended studies' for the university courses they are considering.



“Should I do Mathematics (2 Unit) or Mathematics General in Years 11 and 12?”

The case for Mathematics General

Prior learning and background knowledge, skills and understanding	
If there are things you did in Years 7 to 10 that were confusing at the time you will have a chance to consolidate your learning.	BUT... You will revise many things that you may already know.
Mathematical content of the course	
The syllabus includes Focus Studies and other topics in which the mathematics is presented in real-life contexts. You will study Statistics, which is something you might need when you get to university. The syllabus includes the compulsory use of spreadsheets and other technology.	BUT... The content of Mathematics General will not prepare you for many of the STEM* degrees at university.
Time and effort required	
Capable students will find that they do not need to invest a huge amount of time into homework and studying.	BUT... There are still many different topics and concepts to be covered.
Your fellow students	
You will not be competing against students from other mathematics courses or students who have accelerated their study of mathematics.	BUT... This course is designed for students who require more time to consolidate Mathematics 7 to 10.
HSC Examination	
You will be given a three-page Formulae and Data Booklet, reducing the need to memorise certain things.	BUT... The literacy demands are very high. Some of your responses will be written in mathematical text including diagrams but you also need to be able to explain your thinking and justify your answers.
Contribution to ATAR	
Students in the top 10% of the 30 000-plus Mathematics General candidates receive a reasonably high contribution towards the score out of 500 that determines their ATAR. It is possible, although somewhat atypical, for a Mathematics General student to score an ATAR well above 90.	BUT... The top Mathematics General student usually receives approximately 91 contribution points whereas the top 2 Unit student can score 100. If you do not finish in the top 10% of Mathematics General the ATAR contribution is quite low compared to other subjects.
ATAR Bonus Points	
	You are unlikely to receive ATAR bonus points for Mathematics General.
Entering university and succeeding in a STEM* degree	
Some university degrees do not have mathematical requirements of any sort. See note on page 1 about Sydney University’s prerequisite.	BUT... If you choose a STEM degree you may be required to do a bridging course before you start first year or do a year of Foundation Studies.

* Science-Technology-Engineering-Mathematics



“Should I do Mathematics (2 Unit) or Mathematics General in Years 11 and 12?”

The case for Mathematics 2 Unit

Prior learning and background knowledge, skills and understanding	
Students who have done the mathematics from 5.2 and 5.3 in Years 9 and 10 will have adequate background knowledge for Mathematics 2 Unit.	BUT... If you did not do 5.3 Mathematics in Years 9 and 10 you will need to learn several new concepts, especially at the start of Year 11.
Mathematical content of the course	
There will be some revision of prior learning, but most of the content will be new to you. You will learn calculus, which prepares students more effectively for success in university STEM* courses such as Engineering and Physics.	BUT... The topic of Statistics is not covered or revised in this course.
Time and effort required	
With an investment of time and effort students will be very familiar with most of the questions in the HSC and could achieve high results.	BUT... You might feel that your teacher moves quickly through topics. Some students need to spend more time on mathematics than their other subjects.
HSC Examination	
You have 180 minutes to attempt questions to the value of 100 marks. The literacy demands are often low. Most of your responses will be written in mathematical text and graphs but you also need to be able to explain your thinking and justify your answers.	BUT... The HSC Examination could include almost anything you learnt in previous years (except Statistics).
Contribution to ATAR	
The top Mathematics 2 Unit student can score 100 ATAR contribution points towards their total out of 500 which determines their ATAR. The top Mathematics General student is awarded approximately 91 ATAR points.	BUT... Like every HSC course, your ATAR contribution for Mathematics 2 Unit is related to how you compare to all the students in NSW doing the course.
ATAR Bonus Points	
All universities have a bonus ATAR point system. You could earn bonus ATAR points for your result in Mathematics 2 Unit.	BUT... In most universities, these apply to students who achieve a result in one of the highest bands.
Entering university and succeeding in a STEM* degree	
You have a much greater chance of succeeding if you complete Mathematics 2 Unit than if you do no mathematics or Mathematics General. See note on page 1 about Sydney University's prerequisite.	BUT... If you also do Mathematics Extension 1 (and possibly Mathematics Extension 2) you may be better prepared for your university course.

*** Science-Technology-Engineering-Mathematics**

The information presented in this document reflects the considered views of the Mathematical Association of NSW (MANSW) and is based on available evidence and research findings. MANSW accepts no responsibility for the choices made by students based on the information provided in this document. Readers should investigate all information around this subject before choosing a mathematics course for Years 11 and 12.

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