



# Science

## MATHS 108 : General Mathematics 1 (15 POINTS)

### Course Prescription

A general entry to Mathematics for commerce and the social sciences, following Year 13 Mathematics. MATHS 108 covers selected topics in algebra and calculus and their applications, including: linear functions, linear equations and matrices; functions, equations and inequalities; limits and continuity; differential calculus of one and two variables; integral calculus of one variable. Recommended preparation: It is recommended that NCEA students have a rank score of at least 210 and a merit or excellence in the Differentiation Standard 91578. *Prerequisite: MATHS 102 or 110 or at least 13 credits in Mathematics at NCEA Level 3 including the Differentiation Standard 91578, or D in CIE A2 Mathematics or C in CIE AS Mathematics or 3 out of 7 in IB Mathematics: Analysis and Approaches (SL or HL)*

### Course Overview

This course is intended for students studying commerce and the social sciences, who have studied Mathematics at Year 13. It is also suitable for students who are interested in studying Physics or Mathematics who don't have the recommended entry requirements for MATHS 120 and 130. MATHS 108 covers selected topics in algebra and calculus and their applications, including: linear functions, linear equations and matrices; functions, equations and inequalities; limits and continuity; differential calculus of one and two variables; integral calculus of one variable. It is recommended that NCEA students have a rank score of at least 210 and a merit or excellence in the Differentiation Standard 91578. After successfully completing MATHS 108 students will be well prepared for further courses in mathematics, such as MATHS 208 or Maths 120/130, depending on the grade received.

### Course Requirements

Restriction: ENGGEN 150, ENGSCI 111, MATHS 120, 130, 150, 153, 208, 250

### Capabilities Developed in this Course

- Capability 1: Disciplinary Knowledge and Practice
- Capability 2: Critical Thinking
- Capability 3: Solution Seeking
- Capability 4: Communication and Engagement
- Capability 5: Independence and Integrity

## Capability 6: Social and Environmental Responsibilities

Graduate Profile: [Bachelor of Science](#)

### Learning Outcomes

By the end of this course, students will be able to:

1. Display mastery of the algebra concepts covered. (Capability 1, 2 and 4)
2. Solve problems involving functions and/or calculus. (Capability 1, 2, 3, 4 and 5)
3. Apply the mathematical techniques covered to solve real life problems. (Capability 1, 2, 3, 4 and 5)
4. Communicate mathematics, both verbally and in writing. (Capability 1, 2 and 4)
5. Engage in group discussions and critical interactions. (Capability 3, 4 and 6)

### Assessments

Assessment Type	Percentage	Classification
Assignments	12%	Individual Coursework
Tutorials	5%	Individual Coursework
Mid-semester online assessment	20%	Individual Coursework
Final Exam	50%	Individual Examination
Quizzes	9%	Individual Coursework
Peer-marked video presentation	4%	Individual Coursework
6 types	100%	

Assessment Type	Learning Outcome Addressed				
	1	2	3	4	5
Assignments	✓	✓	✓	✓	
Tutorials	✓	✓	✓	✓	✓
Mid-semester online assessment	✓	✓			
Final Exam	✓	✓			
Quizzes	✓	✓	✓		
Peer-marked video presentation	✓	✓	✓	✓	

We have a dedicated Tuākana space in rooms 303.B13 and B15. Drop in help sessions are run here on a weekly basis, as well as test and exam review sessions. There are also one on one help sessions available to be booked.

For further information please visit [https://www.auckland.ac.nz/en/science/study-with-us/maori-and-pacific-at-the-faculty/tuakana-programme/tu\\_kana-maths.html](https://www.auckland.ac.nz/en/science/study-with-us/maori-and-pacific-at-the-faculty/tuakana-programme/tu_kana-maths.html)

## Key Topics

Topic 1: Sets, functions, and limits

Topic 2: Vectors, lines, planes and intersections

Topic 3: Linear algebra: matrices, linear functions, and systems of linear equations

Topic 4: Differential calculus of one and two variables

Topic 5: Integral calculus of one variable and partial derivatives

## Special Requirements

None.

## Workload Expectations

This course is a standard 15 point course and students are expected to spend 20 hours per week involved in each 15 point course that they are enrolled in over summer school.

For this course, you can expect 6 hours of lectures, 2 hours of tutorials, 6 hours of reading and thinking about the content and 6 hours of work on assignments and/or test preparation.

## Delivery Mode

### Campus Experience

Attendance is expected at scheduled activities including tutorials to receive credit for components of the course.

Lectures will be available as recordings. Other learning activities including tutorials will not be available as recordings.

The course will include live online events including tutorials.

Attendance on campus is not required for the test but is required for the exam.

The activities for the course are scheduled as a standard weekly timetable.

## Learning Resources

1. Maths 108 Coursebook
2. Poole, D. (2015). Linear Algebra, A Modern Introduction 4th Edition. CENGAGE Learning, Nelson Education Ltd, Canada. **This is an optional text**

3. Stewart, J. (2012). Calculus Early Transcendentals, Seventh Edition, International Metric Version. Brooks/Cole CENGAGE Learning, Nelson Education Ltd, Canada. **This is an optional text**

### Student Feedback

During the course Class Representatives in each class can take feedback to the staff responsible for the course and staff-student consultative committees.

At the end of the course students will be invited to give feedback on the course and teaching through a tool called SET or Qualtrics. The lecturers and course co-ordinators will consider all feedback.

Your feedback helps to improve the course and its delivery for all students.

### Digital Resources

Course materials are made available in a learning and collaboration tool called Canvas which also includes reading lists and lecture recordings (where available).

Please remember that the recording of any class on a personal device requires the permission of the instructor.

### Academic Integrity

The University of Auckland will not tolerate cheating, or assisting others to cheat, and views cheating in coursework as a serious academic offence. The work that a student submits for grading must be the student's own work, reflecting their learning. Where work from other sources is used, it must be properly acknowledged and referenced. This requirement also applies to sources on the internet. A student's assessed work may be reviewed against online source material using computerised detection mechanisms.

### Copyright

The content and delivery of content in this course are protected by copyright. Material belonging to others may have been used in this course and copied by and solely for the educational purposes of the University under license.

You may copy the course content for the purposes of private study or research, but you may not upload onto any third party site, make a further copy or sell, alter or further reproduce or distribute any part of the course content to another person.

### Inclusive Learning

All students are asked to discuss any impairment related requirements privately, face to face and/or in written form with the course coordinator, lecturer or tutor.

Student Disability Services also provides support for students with a wide range of impairments, both visible and invisible, to succeed and excel at the University. For more information and contact details, please visit the [Student Disability Services' website](http://disability.auckland.ac.nz) <http://disability.auckland.ac.nz>

### Special Circumstances

If your ability to complete assessed coursework is affected by illness or other personal circumstances outside of your control, contact a member of teaching staff as soon as possible before the assessment is due.

If your personal circumstances significantly affect your performance, or preparation, for an exam or eligible written test, refer to the University's [aegrotat or compassionate consideration page](https://www.auckland.ac.nz/en/students/academic-information/exams-and-final-results/during-exams/aegrotat-and-compassionate-consideration.html) <https://www.auckland.ac.nz/en/students/academic-information/exams-and-final-results/during-exams/aegrotat-and-compassionate-consideration.html>.

This should be done as soon as possible and no later than seven days after the affected test or exam date.

### Learning Continuity

In the event of an unexpected disruption we undertake to maintain the continuity and standard of teaching and learning in all your courses throughout the year. If there are unexpected disruptions the University has contingency plans to ensure that access to your course continues and your assessment is fair, and not compromised. Some adjustments may need to be made in emergencies. You will be kept fully informed by your course co-ordinator, and if disruption occurs you should refer to the University Website for information about how to proceed.

Level 1: Delivered normally as specified in delivery mode

Level 2: You will not be required to attend in person. All teaching and assessment will have a remote option. The following activities will also have an on campus / in person option: [Lectures, labs, tutorials, office hours, field trips, etc.]

Level 3 / 4: All teaching activities and assessments are delivered remotely

### Student Charter and Responsibilities

The Student Charter assumes and acknowledges that students are active participants in the learning process and that they have responsibilities to the institution and the international community of scholars. The University expects that students will act at all times in a way that demonstrates respect for the rights of other students and staff so that the learning environment is both safe and productive. For further information visit [Student Charter](https://www.auckland.ac.nz/en/students/forms-policies-and-guidelines/student-policies-and-guidelines/student-charter.html) <https://www.auckland.ac.nz/en/students/forms-policies-and-guidelines/student-policies-and-guidelines/student-charter.html>.

## Disclaimer

Elements of this outline may be subject to change. The latest information about the course will be available for enrolled students in Canvas.

In this course you may be asked to submit your coursework assessments digitally. The University reserves the right to conduct scheduled tests and examinations for this course online or through the use of computers or other electronic devices. Where tests or examinations are conducted online remote invigilation arrangements may be used. The final decision on the completion mode for a test or examination, and remote invigilation arrangements where applicable, will be advised to students at least 10 days prior to the scheduled date of the assessment, or in the case of an examination when the examination timetable is published.