

## NCEA pathways document

The University of Auckland Planning Unit has conducted an analysis of the NCEA results of school leavers starting an undergraduate programme between 2014, Semester One and 2016, Semester One. With the curriculum changes introduced between 2011 and 2013, the mathematical preparation of school leavers arriving at the University of Auckland has become more diverse. Given the greater variety in preparation, a need was identified for extra guidance to ensure students select the Stage I Mathematics course for which they have the appropriate preparation. Too many students were selecting courses for which their preparation was inadequate, leading to higher failure rates that reflected incorrect choice of Stage I course rather than student intellectual capacity.

The aim of the analysis was to identify which Level 3 NCEA achievement standards were key indicators of success in Stage I Mathematics courses. Two externally assessed achievement standards, AS 3.6 (91578, Differentiation) and AS 3.7 (91579, Integration), were identified as key indicators of success in Stage I Mathematics

courses. The grade achieved in these standards was also important, with students requiring a Merit or Excellence grade to ensure at least an 80% chance of success. This does not mean that the content covered in the internally assessed achievement standards is in any way regarded as irrelevant for future studies at University. However, the distribution of results in Level 3 internally assessed standards did not provide any indication of likely performance in Stage I Mathematics courses.

The pathway diagram guides students through their choice of Stage I Mathematics courses dependent on their NCEA Level 3 studies and their overall Rank Score.

**Rank Score** – is calculated from a student's best 80 credits with Excellence credits worth four points, Merit worth three points and Achieved worth two points. The minimum recommended Rank Score for those taking MATHS 108/110 is 210.

[www.rankscorecalculator.auckland.ac.nz](http://www.rankscorecalculator.auckland.ac.nz)

**MATHS 102** is intended for students whose mathematical preparation or confidence is insufficient to prepare them for MATHS 108, MATHS 110, MATHS 120 and MATHS 130.

**MATHS 108** is intended for students interested in Commerce or the computational sciences (e.g. Economics, Finance, Statistics, Computer Science)

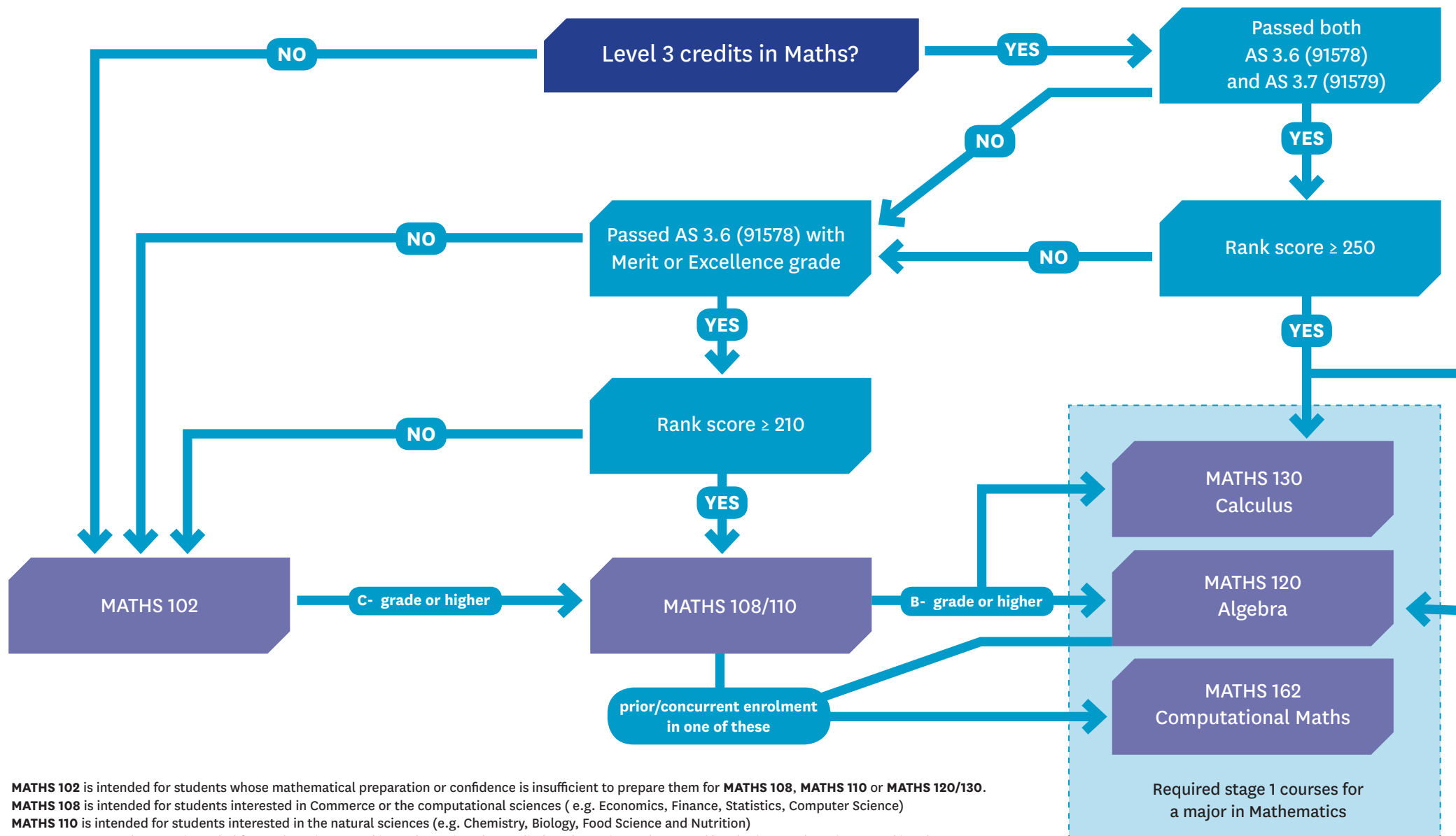
**MATHS 110** is intended for students interested in the natural sciences (e.g. Chemistry, Biology, Food Science and Nutrition)

**MATHS 120, 130 and 162** are intended for students interested in Mathematics, Applied Mathematics and/or Physics. Students interested in other subjects but with the mathematical preparation for these courses should take MATHS 120 and MATHS 130 instead of MATHS 108. These courses cover similar topics to MATHS 108/110, while giving students a stronger mathematical training and more options for further study.

# NCEA achievement standard pathways for success in Stage I University of Auckland Mathematics Courses



POSSIBLE DEGREES – Arts, Commerce, Engineering and Science POSSIBLE SUBJECTS – Biology, Chemistry, Computer Sciences, Earth Science, Economics, Engineering Science, Finance, Food Science and Nutrition, Information and Technology Management, Mathematics, Optoelectronics, Physics and Statistics.  
Degree programme entry requirements also need to be met. For further advice please email [ugadvice@math.auckland.ac.nz](mailto:ugadvice@math.auckland.ac.nz)



**MATHS 102** is intended for students whose mathematical preparation or confidence is insufficient to prepare them for **MATHS 108**, **MATHS 110** or **MATHS 120/130**.  
**MATHS 108** is intended for students interested in Commerce or the computational sciences ( e.g. Economics, Finance, Statistics, Computer Science)  
**MATHS 110** is intended for students interested in the natural sciences (e.g. Chemistry, Biology, Food Science and Nutrition)  
**MATHS 120**, **130** and **162** are intended for students interested in Mathematics, the Applied Mathematics pathway, and/or Physics. Students interested in other subjects but with the mathematical preparation for these courses should take **MATHS 120** and **MATHS 130** instead of **MATHS 108**. These courses cover similar topics to **MATHS 108/110**, while giving students stronger mathematical training and more options for further study.

Required stage 1 courses for a major in Mathematics

AS 3.6 (91578) Differentiation  
AS 3.7 (91579) Integration