# BACHELOR OF CIVIL ENGINEERING (HONOURS)/BACHELOR OF MATHEMATICS
# Program Code: 40084
# CRICOS Code: 088938M

## Transition Arrangements

Last Updated: October 2020

The following description outlines the approved transition arrangements for students who commenced in the Bachelor of Civil Engineering (Honours)/Bachelor of Mathematics program prior to 2021. Students who commence the program in 2021 onwards must the complete the courses and follow the program structure that is outlined in the Program Handbook. If you need further advice, then please contact your Academic Program Advisor on programadvice@newcastle.edu.au.

| **Course Code and Title**<br>(Not yet completed) | **New Course Code and Title**<br>(Course to be completed from 2021 onwards as offered) |
|---|---|
| 'Completed' means successfully passed a course or received approved credit for a course | |
| **CORE COURSES** | |
| **Mathematics Core Option**<br>**Option 1**<br>MATH1110 Mathematics for Engineering, Science and Technology 1 **AND**<br>MATH1120 Mathematics for Engineering, Science and Technology 2<br>***OR***<br>**Option 2**<br>MATH1210 Mathematical Discovery 1 **AND**<br>MATH1220 Mathematical Discovery 2 **AND**<br>10 units of electives | **MATH1110 Mathematics for Engineering, Science and Technology 1**<br>**AND**<br>**MATH1120 Mathematics for Engineering, Science and Technology 2**<br>**AND**<br>**MATH2340 Linearity and Continuity 1**<br><br>***Please note:***<br>***After 2021****, the option to do MATH1210 and MATH1220 has been removed from the program.*<br>***From 2021 onwards****:*<br>*1) if you have not yet completed MATH1210 you must complete MATH1110; and*<br>*2) if you haven't completed MATH1220 then you must complete MATH1120.*<br>*3) Students who already completed MATH1210 & MATH1220 study one Elective.* |
| CIVL2310 Fluid Mechanics | **ENGG2300 Engineering Fluid Mechanics** |
| CIVL2040 Engineering Probabilities | **ENGG2100 Engineering Risk and Uncertainty** |
| ENGG1002 Introduction to Engineering Computations | **ENGG1003 Introduction to Procedural programming** |
| CIVL4330 Hydrology | **CIVL3330 Hydrology** |
| MATH2320 Linear Algebra | **MATH2350 Linearity and Continuity 2**<br>**Note:** *If you have previously completed MATH2320 Linear Algebra AND MATH2330 Analysis you cannot* |

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| | *take this course. You may instead take an additional mathematics directed course.* |
| STAT2010 Fundamentals of Statistics | **One 10-unit Elective*** |
| One 10-unit Elective | **STAT2020 Predictive Analytics ****<br><br>This is not a direct replacement. Please refer to the table below for further information. |
| One 10-unit Elective | **Additional 2000 level Mathematics Directed course ****<br><br>This is not a direct replacement. Please refer to the table below for further information. |

***STAT2010 Fundamentals of Statistics**

From 2021 onwards, STAT2010 Fundamentals of Statistics has been removed on the program and replaced by 10-units of Elective courses. For students who have already completed STAT2010, it will still count towards your program, and you will not be required to complete an additional 10-unit Elective.

****30 units of Elective courses**

From 2021 onwards 30 units of Elective courses and the Mathematics pathway options have been removed from the program. One 10-unit Elective has been replaced by STAT2020 Predictive Analytics, one 10-unit Elective has been replaced by MATH2340 Linearity and Continuity 1 and one 10-unit Elective has been replaced by one additional 10-unit 2000 level Mathematics Directed course.

**Option 1 Pathway: MATH1110 Mathematics for Engineering, Science and Technology 1 (10 units), MATH1120 Mathematics for Engineering, Science and Technology 2 (10 units) and MATH2340 Linearity and Continuity 1 (10 units) which together total 30 units.**

For students who were previously undertaking the MATH1110/MATH1120 pathway, you are still required to take MATH2340 Linearity and Continuity 1. Should you have remaining elective courses you are permitted, but not required, to take STAT2020 Predictive Analysis and/or choose one additional 10-unit 2000 level Mathematics Directed course - each of these would count as one 10-unit Elective.

**Option 2 Pathway: MATH1210 Mathematical Discovery 1 (10 units) and MATH1220 Mathematical Discovery 2 (10 units) and one 10-unit Elective course which together total 30 units.**

For students who were previously undertaking the MATH1210/MATH1220 pathway, you are not required to use your elective course to take MATH2340 Linearity and Continuity 1. Should you have remaining elective courses you are permitted, but not required, to take MATH2340 Linearity and Continuity 1, STAT2020 Predictive Analysis and/or choose one additional 10-unit 2000 level Mathematics Directed course - each of these would count as one 10-unit Elective.

For students commencing in 2021, they will complete:

- STAT2020 Predictive Analytics (10 units) (core)

- MATH2340 Linearity and Continuity 1 (10 units) (core)
- 10 units of Electives
- 60 units of Mathematics Directed courses:
    - 20 units at the 2000 level and
    - 40 units at the 3000 level.

**Bachelor of Mathematics Transition Arrangements**

| **MATHEMATICS DIRECTED COURSES**<br>**Course Code and Title**<br>(Not yet completed) | **New Course Code and Title**<br>(Course to be completed from 2021 onwards as offered)<br>'Completed' means successfully passed a course or received approved credit for a course |
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| **2000 LEVEL DIRECTED COURSES – 50 units**<br>**Choose 10 units from the following directed courses** | |
| MATH2330 Real Analysis | **If you have not yet done this course, then choose another 2000 level Directed course from the list.** |
| MATH2730 Operations Research 1 | **If you have not yet done this course, then choose another 2000 level Directed course from the list.** |
| STAT2000 Applied Statistics and Research Methods | **STAT2000 Applied Statistics and Research Methods** |
| | **MATH2800 Ordinary Differential Equations** |
| | **STAT2300 Statistical Inference**<br>**Note**: *If you have completed STAT3010 Statistical Inference you cannot take this course.* |
| | **MATH2242 Complex Analysis**<br>**Note:** *If you have completed MATH3242 Complex Analysis you cannot take this course.* |
| **3000 LEVEL DIRECECTED COURSES – 40 UNITS**<br>**Choose 40 units from the following directed courses** | |
| MATH3120 Algebra | MATH3120 Algebra |
| MATH3170 Number Theory | MATH3170 Number Theory |
| MATH3180 Topology | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |
| MATH3205 Fourier Analysis | MATH3205 Fourier Analysis |
| MATH3210 Directed Studies in Mathematics | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |
| MATH3242 Complex Analysis | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |
| MATH3400 Research Topics in Mathematics | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |
| MATH3510 Combinatorics and Graph Theory | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |
| MATH3700 Advanced Differential Equations | **MATH3700 Partial Differential Equations** *(change to course title only)* |
| MATH3820 Numerical Methods | MATH3820 Numerical Methods |

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| MATH3800 Optimisation *(Previously MATH3830 Operations Research 2)* | **STAT3800 Deterministic and Stochastic Optimisation** |
| MATH3840 Optimisation in Business and Industry | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |
| MATH3850 Industrial Project | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |
| STAT3010 Statistical Inference | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |
| STAT3030 Generalised Linear Models | STAT3030 Generalised Linear Models |
| STAT3040 Time Series Analysis | **STAT3040 Forecasting Linear Time Series** *(change to course title only)* |
| STAT3100 Systems Thinking *(previously STAT3100 Total Quality Management)* | STAT3100 Systems Thinking |
| STAT3120 Applied Bayesian Methods | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |
| STAT3170 Surveys and Experiments | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |
| STAT3990 Topics in Statistics | **If you have not yet done this course, then choose another 3000 level Directed course from the list.** |