

# PROGRAM PLAN

## BACHELOR OF MATHEMATICS

**PROGRAM OPTION:**  
DOUBLE MAJOR PATHWAY

**START DATE:**  
Semester 1, 2021

**LOCATION:**  
Callaghan

This Program Plan is an enrolment guide to ensure you are on track to graduate. If at any time you wish to vary from this program plan seek advice from your Academic Program Advisor to ensure you remain on track.

 [PROGRAM HANDBOOK](#)  
 [COURSE HANDBOOK](#)

**NAME:**  
**STUDENT NO.:**

### COURSE STATUS KEY

**C** = Completed  
**En** = Enrolled  
**NS** = Not Started

YEAR 1	SEMESTER 1	<b>MATH1110</b> Mathematics for Engineering, Science and Technology 1	<b>STAT1100</b> Data Wrangling and Visualisation	<b>PROGRAMMING DIRECTED COURSE</b>	<b>ELECTIVE</b> 1000/2000/3000 Level
		CORE	CORE	DIRECTED	ELECTIVE

SEMESTER 2	<b>MATH1120</b> Mathematics for Engineering, Science and Technology 2	<b>MATH1800</b> Mathematical Modelling	<b>STAT1300</b> Fundamentals of Statistics	<b>ELECTIVE</b> 1000/2000/3000 Level
	CORE	CORE	CORE	ELECTIVE

YEAR 2	SEMESTER 1	<b>MATH2310</b> Calculus of Science and Engineering	<b>MATH2340</b> Linearity and Continuity 1	<b>MAJOR 1</b> 2000 Level	<b>MAJOR 2</b> 2000 Level
		CORE	CORE	MAJOR	MAJOR

SEMESTER 2	<b>MATH2350</b> Linearity and Continuity 2	<b>STAT2020</b> Predictive Analytics	<b>MAJOR 1</b> 2000 Level	<b>MAJOR 2</b> 2000 Level
	CORE	CORE	MAJOR	MAJOR

YEAR 3	SEMESTER 1	<b>MAJOR 1</b> 3000 level	<b>MAJOR 1</b> 3000 level	<b>MAJOR 2</b> 3000 level	<b>MAJOR 2</b> 3000 level
		MAJOR	MAJOR	MAJOR	MAJOR

SEMESTER 2	<b>MAJOR 1</b> 3000 level	<b>MAJOR 1</b> 3000 level	<b>MAJOR 2</b> 3000 level	<b>MAJOR 2</b> 3000 level
	MAJOR	MAJOR	MAJOR	MAJOR

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To be eligible to graduate make sure you have completed 240 units (10 units = 1 course unless otherwise specified) which meet the following criteria:

- Core courses – 90 units (20 units of your Core courses are also counted towards your Major).
- Directed Programming Course - one 10 unit course.
- Major 1 – 60 units (20 units of Core Courses are also included in the major for a total of 80 units)
- Major 2 - 60 units (20 units of Core Courses are also included in the major for a total of 80 units). **Each major must contain at least 60 units of unique courses.**
- Electives – 20 units visit the [Course Handbook](#) to see a list of available Electives or choose from the Suggested Electives on the [Program Handbook](#).
- Students must not exceed 100 units at 1000 level.
- Students must take a minimum of 60 units at 3000 level.
- The duration of this program is 3 year full-time (40 units per semester) or part-time equivalent.
- The maximum time to complete this program is 8 years.



Some courses have assumed knowledge and/or requisites, please refer to the individual [Course Handbook](#). Please refer to the [Program Handbook](#) for specific information on program structure. If you are intending varying from this program plan please seek advice from your [Program Advisor](#).

# PROGRAM PLAN

## BACHELOR OF MATHEMATICS

### DIRECTED PROGRAMMING COURSE

#### DIRECTED COURSES

Complete 10 units from:

**ENGG1003:** Introduction to Procedural Programming  
**INFT1004:** Introduction to Programming  
**SENG1110:** Object Oriented Programming

### PURE AND APPLIED MATHEMATICS MAJOR

#### CORE COURSES COUNTING TOWARD MAJOR

**MATH1120:** Mathematics for Engineering, Science and Tech 2:  
**MATH1800:** Mathematical Modelling

#### COMPULSORY COURSES

**MATH2242:** Complex Analysis  
**MATH2800:** Ordinary Differential Equations

#### DIRECTED COURSES

Complete 40 units from:

**MATH3120:** Algebra  
**MATH3170:** Number Theory  
**MATH3205:** Fourier Analysis  
**MATH3700:** Partial Differential Equations  
**MATH3820:** Numerical Methods

### STATISTICS MAJOR

#### CORE COURSES COUNTING TOWARD MAJOR

**STAT1100:** Data Wrangling and Visualisation  
**STAT1300:** Fundamentals of Statistics

#### COMPULSORY COURSES

**STAT2000:** Applied Statistics and Research Methods  
**STAT2300:** Statistical Inference  
**STAT3030:** Generalised Linear Models  
**STAT3040:** Time Series Analysis  
**STAT3100:** Systems Thinking for an Integrated Workforce  
**STAT3800:** Deterministic and Stochastic Optimisation

# PROGRAM PLAN

## BACHELOR OF MATHEMATICS

### STUDIES IN MATHEMATICS AND STATISTICS MAJOR

The Studies in Mathematics and Statistics Major cannot be studied alongside the Pure Mathematics Major or the Statistics Major

#### CORE COURSES COUNTING TOWARD MAJOR

MATH1120: Mathematics for Engineering, Science and Tech 2  
MATH1800: Mathematical Modelling

#### DIRECTED COURSES

Complete 20 units from:

MATH2242: Complex Analysis  
MATH2800: Ordinary Differential Equations  
STAT2000: Applied Statistics and Research Methods  
STAT2300: Statistical Inference

#### DIRECTED COURSES

Complete 40 units from:

MATH3120: Algebra  
MATH3170: Number Theory  
MATH3205: Fourier Analysis  
MATH3700: Partial Differential Equations  
MATH3820: Numerical Methods  
STAT3030: Generalised Linear Models  
STAT3040: Time Series Analysis  
STAT3100: Systems Thinking for an Integrated Workforce  
STAT3800: Deterministic and Stochastic Optimisation

### DATA SCIENCE CO-MAJOR

The Data Science Co-major cannot be completed as a single major. The Data Science Co-major can only be studied as part of a double major alongside the Statistics Major or the Studies in Mathematics and Statistics Major.

#### CORE COURSES COUNTING TOWARD MAJOR

STAT2300: Statistical Inference

#### COMPULSORY COURSES

SENG1110: Object Oriented Programming  
COMP1140: Database Management  
SENG1120: Data Structures  
COMP2230: Algorithms  
COMP3330: Machine Intelligence  
COMP3340: Data Mining

#### DIRECTED COURSES

Complete 10 units from:

STAT3030: Generalised Linear Models  
STAT3040: Time Series Analysis  
STAT3800: Deterministic and Stochastic Optimisation

### CLIMATE SCIENCE CO-MAJOR

The Climate Science Co-major cannot be completed as a single major. The Climate Science Co-major cannot be studied alongside the Data Science Co-major. The Climate Science Co-major will require use of all 80 units of electives.

#### COMPULSORY COURSES

GEOS1040: Earth: The Dynamic Planet  
GEOS1050: Earth Processes and Products  
GEOS2050: Catchments and Climate  
GEOS2161: Spatial Science  
PHYS2300: Climate and Energy  
SCIE2223: Weather and Waves  
GEOS3250: Advanced Spatial Science  
GEOS3340: Climate Change and resource Management