

# PROGRAM PLAN



## BACHELOR OF MATHEMATICS / BACHELOR OF SCIENCE

**PROGRAM OPTION:**  
B Science - Physics Major

**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  CORE	<b>STAT1100</b> Data Wrangling and Visualisation  CORE	<b>SCIE1001</b> Professional Scientific Thinking  CORE	<b>SCIE1002</b> Multidisciplinary Laboratories  CORE	SEMESTER 2	<b>MATH1800</b> Mathematical Modelling  CORE	<b>MATH1120*</b> Mathematics for Engineering, Science and Technology 2  CORE	<b>STAT1300</b> Fundamentals of Statistics  CORE	<b>PHYS1210</b> Advanced Physics I  PHYSICS MAJOR
	SEMESTER 1	<b>MATH2310*</b> Calculus of Science and Engineering  CORE	<b>MATH2340</b> Linearity and Continuity 1  CORE	<b>SCIE2001</b> Professional Employment Skills  CORE	<b>MATHEMATIBS PROGRAMMING DIRECTED COURSE</b> SENG1110 or INFT1004 or ENGG1003  DIRECTED	SEMESTER 2	<b>MATH2350</b> Linearity and Continuity 2  CORE	<b>STAT2020</b> Predictive Analytics  CORE	<b>SCIE2002</b> Interdisciplinary Challenges  CORE	<b>PHYS1220</b> Advanced Physics II  PHYSICS MAJOR
YEAR 3	SEMESTER 1	<b>SCIE3001A</b> Transdisciplinary Capstone: Planning and Implementing  CORE	<b>MATH MAJOR</b> 2000 level  MAJOR	<b>PHYS2111</b> Classical Physics 1  PHYSICS MAJOR	<b>PHYS2211</b> Modern Physics 1  PHYSICS MAJOR	SEMESTER 2	<b>SCIE3001B</b> Transdisciplinary Capstone: Implementing and Communicating  CORE	<b>MATH MAJOR</b> 2000 level  MAJOR	<b>PHYS2112</b> Classical Physics 2  PHYSICS MAJOR	<b>PHYSICS MAJOR DIRECTED</b> MATH2242 or MATH3820  PHYSICS MAJOR
	SEMESTER 1	<b>MATH MAJOR</b> 3000 level  MAJOR	<b>MATH MAJOR</b> 3000 level  MAJOR	<b>PHYS3111</b> Biophysics  PHYSICS MAJOR	<b>PHYS3112</b> Photonics  PHYSICS MAJOR	SEMESTER 2	<b>MATH MAJOR</b> 3000 level  MAJOR	<b>MATH MAJOR</b> 3000 level  MAJOR	<b>PHYS3211</b> Quantum Information Science  PHYSICS MAJOR	<b>ELECTIVE</b> 1000/2000/3000 Level  ELECTIVE

\* MATH1110, MATH1120 and MATH2310 are Core Courses that also count towards the Physics Major

## PROGRAM PLAN

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To be eligible to graduate make sure you have completed 320 units (10 units = 1 course unless otherwise specified) which meet the following criteria:

- Core courses – 150 units.
- A 10 unit Bachelor of Mathematics programming directed course.
- Mathematics Major – 60 units (20 units of Core Courses are also included in the major for a total of 80 units).
- Science Major – 90 units (30 units of Core Courses are also included in the Physics major for a total of 120 units).
- Electives<sup>^</sup> – 10 units visit the [Course Handbook](#) to see a list of available Electives.
- Students must not exceed 120 units at 1000 level in this program.
- The duration of this program is 4 year full-time (40 units per semester) or part-time equivalent.
- The maximum time to complete this program is 10 years.

<sup>^</sup> MATH2242 and MATH3820 are in the B Science Physics Major, and the B Mathematics Pure and Applied Mathematics Major and the Studies in Mathematics and Statistics Major. If you are completing either of these Mathematics Majors MATH2242 or MATH3820 will count towards both the B Science Physics Major as the 10 unit Directed Course, and the B Mathematics Pure and Applied Mathematics Major or the Studies in Mathematics and Statistics Major. You will complete an additional 10 unit elective at any level to make up the 320 units required for the program.



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 [Academic Program Advisor](#).

# PROGRAM PLAN

## BACHELOR OF MATHEMATICS / BACHELOR OF SCIENCE

### SCIENCE MAJOR

#### PHYSICS MAJOR

##### CORE COURSES COUNTING TOWARDS YOUR MAJOR

**MATH1110: Mathematics for Engineering, Science and Technology 1**

**MATH1210: Mathematical Discovery 1**

**MATH2310: Calculus of Science and Engineering**

##### COMPULSORY COURSES

Complete the following compulsory courses:

**PHYS1210: Advanced Physics I**

**PHYS1220: Advanced Physics II**

**PHYS2111: Classical Physics 1**

**PHYS2112: Classical Physics 2**

**PHYS2211: Modern Physics 1**

**PHYS3111: Biophysics**

**PHYS3112: Photonics**

**PHYS3211: Quantum Information Science**

##### DIRECTED COURSES

Complete 10 units from:

**^MATH2242: Complex Analysis**

**^MATH3820: Numerical Methods**

^ MATH2242 and MATH3820 are in the B Science Physics Major, and the B Mathematics Pure and Applied Mathematics Major and the Studies in Mathematics and Statistics Major. If you are completing either of these Mathematics Majors MATH2242 or MATH3820 will count towards both the B Science Physics Major as the 10 unit Directed Course, and the B Mathematics Pure and Applied Mathematics Major or the Studies in Mathematics and Statistics Major. You will complete an additional 10 unit elective at any level to make up the 320 units required for the program.

#### DIRECTED MATH PROGRAMMING COURSE

##### DIRECTED COURSES

Complete 10 units from:

**ENGG1003: Introduction to Procedural Programming**

**INFT1004: Introduction to Programming**

**SENG1110: Object Oriented Programming**

# PROGRAM PLAN

## BACHELOR OF MATHEMATICS / BACHELOR OF SCIENCE

### MATHEMATICS MAJORS

#### PURE AND APPLIED MATHEMATICS MAJOR

##### CORE COURSES COUNTING TOWARDS MAJOR

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

##### COMPULSORY COURSES

Complete the following compulsory courses:

MATH2242: Complex Analysis  
MATH2800: Ordinary Differential Equations

##### DIRECTED COURSES – 3000 LEVEL

Complete 40 units from:

MATH3120: Algebra  
MATH3170: Number Theory Through Algorithms  
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

Complete the following 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

#### STUDIES IN MATHEMATICS AND STATISTICS MAJOR

##### CORE COURSES COUNTING TOWARDS MAJOR

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

##### DIRECTED COURSES – 2000 LEVEL

Complete 20 units from:

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

##### DIRECTED COURSES – 3000 LEVEL

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