

PROGRAM PLAN

BACHELOR OF MATHEMATICS / BACHELOR OF SCIENCE

PROGRAM OPTION:
All Science Majors other than
Physics

START DATE:
Semester 2, 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					SEMESTER 2	MATH1110 Mathematics for Engineering, Science and Technology 1 CORE	MATH1800 Mathematical Modelling CORE	STAT1300 Fundamentals of Statistics CORE	ELECTIVE 1000/2000/3000 Level ELECTIVE
YEAR 2	SEMESTER 1	MATH1120 Mathematics for Engineering, Science and Technology 2 CORE	STAT1100 Data Wrangling and Visualisation CORE	SCIE1001 Professional Scientific Thinking CORE	SCIE1002 Multidisciplinary Laboratories CORE	SEMESTER 2	MATH2350 Linear Algebra CORE	STAT2020 Predictive Analytics CORE	SCIE2002 Interdisciplinary Challenges CORE	ELECTIVE 1000/2000/3000 Level ELECTIVE
YEAR 3	SEMESTER 1	MATH2310 Calculus of Science and Engineering CORE	MATH2340 Linearity and Continuity CORE	SCIE2001 Professional Employment Skills CORE	PROGRAMMING DIRECTED COURSE SENG1110 or INFT1004 or ENGG1003 DIRECTED	SEMESTER 2	MATH MAJOR 3000 level MAJOR	MATH MAJOR 2000 level MAJOR	SCIENCE MAJOR MAJOR	SCIENCE MAJOR MAJOR
YEAR 4	SEMESTER 1	SCIE3001A Transdisciplinary Capstone: Planning and Implementing CORE	MATH MAJOR 2000 level MAJOR	SCIENCE MAJOR MAJOR	SCIENCE MAJOR MAJOR	SEMESTER 2	SCIE3001B Transdisciplinary Capstone: Implementing and Communicating CORE	MATH MAJOR 3000 level MAJOR	SCIENCE MAJOR MAJOR	SCIENCE MAJOR MAJOR
YEAR 5	SEMESTER 1	MATH MAJOR 3000 level MAJOR	MATH MAJOR 3000 level MAJOR	SCIENCE MAJOR MAJOR	SCIENCE MAJOR MAJOR	SEMESTER 2				

Science Majors: Biodiversity and Conservation – Biological Sciences – Chemistry (Advanced Materials) – Chemistry (Medicinal and Organic) - Earth Sciences – Geography – Psychology

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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 – 150 units.
- A 10 unit Bachelor of Mathematics programming directed course.
- Mathematics Major – 80 units (20 units of Core Courses are also included in the major for a total of 80 units).
- Science Major – 80 units (20 units of Core Courses are also included in the major for a total of 80 units).
- Electives – 20 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.



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](#).

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SCIENCE MAJORS

BIODIVERSITY AND CONSERVATION MAJOR

COMPULSORY COURSES

Complete the following compulsory courses:

ENVS1001: Environmental Science Concepts & Methods
ENVS1003: Environmental Values and Ethics
ENVS3003: Conservation Biology
ENVS3004: Ecotoxicology
ENVS3005: Animal Behaviour

DIRECTED COURSES – 2000 LEVEL

Complete 20 units from:

ENVS2004: Ecology
ENVS2005: Management of Australian Flora
ENVS2006: Ecology and Management of Wildlife

DIRECTED COURSES – 3000 LEVEL

Complete 10 units from:

ENVS3009: Advanced Water Science and Resource Management
MARI3320: Ecological Methodology
SRMT3060: Restoration Ecology
SCIE3500 Research Integrated Learning

BIOLOGICAL SCIENCES MAJOR

COMPULSORY COURSES

Complete the following compulsory courses:

BIOL1001: Molecules, Cells and Organisms
BIOL1002: Organisms to Ecosystems
BIOL2001: Molecular Lab Skills for Biological Sciences
BIOL2002: Lab Skills in Biological Systems
BIOL3001: Advanced Lab Skills in Biological Sciences

Directed Pathways – choose one of the following pathways

MICROBIOLOGY

Complete the following compulsory courses:

BIOL2090: Microbial Biology
BIOL3090: Molecular Biology
BIOL3100: Microbiology

ANIMAL AND PLANT BIOLOGY

Complete the following compulsory courses:

BIOL2220: Plant Cell Development
BIOL3020: Animal Physiology, Reproduction and Development
BIOL3090: Molecular Biology

CHEMISTRY (ADVANCED MATERIALS) MAJOR

COMPULSORY COURSES

Complete the following compulsory courses:

CHEM1010: Introductory Chemistry I
CHEM1020: Introductory Chemistry II
CHEM2110: Analytical Chemistry
CHEM2210: Inorganic Chemistry
CHEM2410: Physical Chemistry
CHEM3110: Instrumental Chemical Analysis

DIRECTED COURSES

Complete 20 units from:

CHEM3210: Metal Complexation, Structure and Reactivity
CHEM3410: Energy and Structure
CHEM3580: Polymers and Colloids

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SCIENCE MAJORS

CHEMISTRY (MEDICINAL AND ORGANIC) MAJOR

COMPULSORY COURSES

Complete the following compulsory courses:

CHEM1010: Introductory Chemistry I
CHEM1020: Introductory Chemistry II
CHEM2110: Analytical Chemistry
CHEM2310: Organic Chemistry
CHEM2410: Physical Chemistry
CHEM3110: Instrumental Chemical Analysis

DIRECTED COURSES

Complete 20 units from:

CHEM3210: Metal Complexation, Structure and Reactivity
CHEM3310: Molecular Organic Synthesis
CHEM3550: Medicinal and Biological Chemistry

EARTH SCIENCES MAJOR

COMPULSORY COURSES

Complete the following compulsory courses:

GEOS1040: Earth's Dynamic Systems
GEOS1050: Earth Processes and Products
GEOS2080: Earth Science Field Course
GEOS2161: Spatial Science
GEOS3250: Advanced Spatial Science

DIRECTED COURSES – 2000 LEVEL

Complete 10 units from:

GEOS2050: River Basin Processes
GEOS2060: Soil Properties and Processes
ENVS2009: Catchment and Water Resource Management
SCIE2223: Weather and Waves

DIRECTED COURSES – 3000 LEVEL

Complete 20 units from:

ECON3006: Environmental Economics
ENVS3007: Environmental Remediation
ENVS3009: Advanced Water Science and Resource Management
GEOS3220: Coastal Environments and Processes
GEOS3280: Global Change and the Rise of Modern Environments
GEOS3340: Climate Change and Resource Management

GEOGRAPHY MAJOR

COMPULSORY COURSES

Complete the following compulsory courses:

GEOG1020: Introduction to Human Geography
GEOS1040: Earth's Dynamic Systems
GEOS2161: Spatial Science
GEOS3250: Advanced Spatial Science

DIRECTED COURSES – 2000 LEVEL

Complete 10 units from:

ENVS2002: Environmental Legislation & Planning
ENVS2008: The Sustainable Society
GEOG2080: Cities and Regions
GEOG2130: Geographies of Development
GEOS2050: River Basin Processes
GEOS2080: Earth Science Field Course
SOCS2400: Applied Social Research

DIRECTED COURSES – 3000 LEVEL

Complete 30 units from:

ENVS3001: Integrated Impact Assessment
ENVS3006: Sustainability: Theory and Practice
ENVS3007: Environmental Remediation
ENVS3008: Organisational Placement
GEOG3090: Society and Space
GEOG3300: Rethinking Development
GEOS3220: Coastal Environments and Processes
GEOS3280: Global Change and the Rise of Modern Environments
GEOS3340: Climate Change and Resource Management
ENVS3008: Organisational Placement
SCIE3500: Research and Work Integrated learning

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SCIENCE MAJORS

PSYCHOLOGY MAJOR

COMPULSORY COURSES

Complete the following compulsory courses:

PSYC1010: Psychology Introduction 1
PSYC1020: Psychology Introduction 2
PSYC2300: Cognitive Psychology
PSYC2400: Biological Psychology
PSYC3000: Advanced Research Methods and Stats in Psych
PSYC3800: Special Topics

DIRECTED COURSES – 3000 LEVEL

Complete 20 units from:

PSYC3001: Advanced Psychological Measurement
PSYC3301: Advanced Perception and Learning in Psychology
ENVS3005: Animal Behaviour

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MATHEMATICS MAJORS

DIRECTED MATH 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 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

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MATHEMATICS MAJORS

STUDIES IN MATHEMATICS AND STATISTICS 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
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