

# PROGRAM PLAN

## BACHELOR OF SCIENCE

**PROGRAM OPTION:**  
Double 80 Unit Major

**START DATE:**  
Semester 2 2021

**LOCATION:**  
Callaghan and Central Coast

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	STAT1070 Statistics for the Sciences	DIRECTED MATH* 1000 level	MAJOR 1	MAJOR 2^		
							CORE	DIRECTED	MAJOR	MAJOR		
YEAR 2	SEMESTER 1	SCIE1001 Professional Scientific Thinking	SCIE1002 Multidisciplinary Laboratories	MAJOR 1	MAJOR 2^	SEMESTER 2	SCIE2002 Interdisciplinary Challenges		MAJOR 1	MAJOR 2^	MAJOR 2^	
		CORE	CORE	MAJOR	MAJOR		CORE	MAJOR	MAJOR	MAJOR	MAJOR	
YEAR 3	SEMESTER 1	SCIE2001 Professional Employment Skills		MAJOR 1	MAJOR 1	MAJOR 2^	SEMESTER 2	SCIE3001A Transdisciplinary Capstone: Planning and Implementing		MAJOR 1	MAJOR 2^	MAJOR 2^
		CORE	MAJOR	MAJOR	MAJOR	MAJOR		CORE	MAJOR	MAJOR	MAJOR	
YEAR 4	SEMESTER 1	SCIE3001B Transdisciplinary Capstone: Implementing and Communicating		MAJOR 1	MAJOR 1	MAJOR 2^	SEMESTER 2					
		CORE	MAJOR	MAJOR	MAJOR	MAJOR						

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

\*Students choose their MATH Directed course based on previous mathematical background. See the [Enrolling in mathematics](#) – Maths Placement Test information.

^ Major 1 and Major 2 are to be chosen from different disciplines. Please refer to the [Program Handbook](#) to see which discipline each major belongs to.

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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 – 70 units.
- Directed – 10 unit MATH Directed.
- Major 1 – 80 units chosen from one discipline.
- Major 2 – 80 units chosen from another discipline.
- Students must ensure that each Major is chosen from a different discipline – visit the [Program Handbook](#) for more information.
- Each major must have a minimum of 60 units of unique courses. Please note that here are courses that can be counted towards both majors – which may allow you to complete up to 20 units of electives.
- Students must not exceed 100 units at 1000 level in this program.
- Students must complete a minimum of 40 units at 1000 and 2000 and 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 SCIENCE

### 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: Applied Analytical Chemistry**  
**CHEM2210: Inorganic Chemistry**  
**CHEM2410: Physical Chemistry**  
**CHEM3110: Instrumental Chemical Analysis**

#### DIRECTED COURSES – 3000 LEVEL

Complete 20 units from:

**CHEM3210: Functional Materials**  
**CHEM3410: Energy and Structure**  
**CHEM3580 Colloids, Interfaces and Soft Matter**

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## BACHELOR OF SCIENCE

### CHEMISTRY (MEDICINAL AND ORGANIC) MAJOR

#### COMPULSORY COURSES

Complete the following compulsory courses:

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

#### DIRECTED COURSES – 3000 LEVEL

Complete 20 units from:

CHEM3210: Functional Materials  
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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## BACHELOR OF SCIENCE

### MATHEMATICS MAJOR

Students must complete MATH1110 as their Math Directed course

#### COMPULSORY COURSES

Complete the following compulsory courses:

**MATH1120: Mathematics for Engineering, Science and Technology 2**  
**MATH2242: Complex Analysis**  
**MATH2310: Calculus of Science and Engineering**  
**MATH2340: Linearity and Continuity**  
**MATH2800: Ordinary Differential Equations**

#### DIRECTED COURSES – 3000 LEVEL

Complete 30 units from:

**MATH3205: Fourier Analysis**  
**MATH3120: Algebra**  
**MATH3700: Partial Differential Equations and Modelling**  
**MATH3820: Numerical Methods**  
**SCIE3500: Research Integrated Learning**  
**STAT3800: Deterministic and Stochastic Optimisation**

### 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**

### STATISTICS MAJOR

Students must complete MATH1110 as their Math Directed course

#### COMPULSORY COURSES

Complete the following compulsory courses:

**MATH1120: Mathematics for Engineering, Science and Technology 2**  
**STAT1300: Fundamentals of Statistics**  
**STAT2000: Applied Statistics and Research Methods**  
**STAT3030: Generalised Linear Models**  
**STAT3040: Time Series Analysis**  
**STAT3100: Systems Thinking for an Integrated Workforce**  
**STAT3800: Deterministic and Stochastic Optimisation**

#### DIRECTED COURSES – 2000 LEVEL

Complete 10 units from:

**STAT2020: Predictive Analytics**  
**STAT2300: Statistical Inference**