

PROGRAM PLAN



BACHELOR OF SCIENCE

PROGRAM OPTION:
Pathway B – 120 Unit Major

START DATE:
Semester 1, 2019 - 2020

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	SCIE1001 Professional Scientific Thinking CORE	SCIE1002 Multidisciplinary Laboratories CORE	MAJOR MAJOR	ELECTIVE** 1000/2000/3000 level ELECTIVE	SEMESTER 2	STAT1070 Statistics for the Sciences CORE	DIRECTED MATH* 1000 level DIRECTED	MAJOR MAJOR	ELECTIVE** 1000/2000/3000 level ELECTIVE
	YEAR 2	SEMESTER 1	SCIE2001 Professional Employment Skills CORE	MAJOR MAJOR	MAJOR MAJOR	ELECTIVE** 2000/3000 level ELECTIVE	SEMESTER 2	SCIE2002 Interdisciplinary Challenges CORE	MAJOR MAJOR	MAJOR MAJOR
YEAR 3	SEMESTER 1	SCIE3001A Transdisciplinary Capstone: Planning and Implementing CORE	MAJOR MAJOR	MAJOR MAJOR	MAJOR MAJOR	SEMESTER 2	SCIE3001B Transdisciplinary Capstone: Implementing and Communicating CORE	MAJOR MAJOR	MAJOR MAJOR	MAJOR MAJOR

Science Majors available in Pathway B: Animal Biology – Plant Biology – Chemistry – Water, Climate and Soils – Geology – Biodiversity, Conservation and Ecological Sciences – Environmental Remediation – Marine, Coastal and Ecological Sciences – Integrated Geography

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

**Elective Options include: Science Elective Pathways or any unrestricted courses offered within the university. When choosing electives students must consider that the courses for the overall program must not exceed 100 units at 1000 level and must include a minimum of 60 units at 3000 level.

Note: The Psychology Major has been reduced to 80 units - please refer to the 2019 - 2020 80 unit major program plan.

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BACHELOR OF SCIENCE

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 courses+ – 120 units, visit the [Program Handbook](#) for more information.
- Elective courses – 40 units – chosen from the Science Elective Pathways or any unrestricted courses offered within the University. Refer to the Science Elective Pathway documents located in the [Program Handbook](#) or visit the [Course Handbook](#) to see a list of available electives.
- Students must not exceed 100 units at 1000 level in this program.
- **Students who commenced in 2019** must complete a minimum of 40 units at all levels (1000, 2000 and 3000).
- **Students who commenced in 2020** must complete a minimum of 40 units at 1000 and 2000 level 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.

+Important Information for students who commenced the program prior to 2021:

Bachelor of Science Majors

The 120 unit majors listed on this program plan have been discontinued from 2021, you are still able to complete your major, please refer to the [Transition Arrangements](#) in the Bachelor Science Program Handbook.



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 SCIENCE

ANIMAL BIOLOGY MAOR

COMPULSORY COURSES

Complete all the following compulsory courses:

BIOL1001: Molecules, Cells and Organisms
BIOL1002: Organisms to Ecosystems

DIRECTED LIST A

Complete 60 units from:

BIOL2001: Molecular Lab Skills for Biological Sciences
BIOL2002: Lab Skills in Biological Systems
BIOL2010: Biochemistry
BIOL2020: Animal Physiology and Development (no longer offered)
BIOL2050: Molecular Genetics
BIOL2090: Microbial Biology
ENVS2004: Ecology
ENVS2006: Ecology and Management of Wildlife

DIRECTED LIST B

Complete 40 units, prioritising BIOL codes as allowed by your enrolment structure:

BIOL3001: Advanced Lab Skills in Biological Sciences
BIOL3020: Animal Physiology, Reproduction & Development
BIOL3090: Molecular Biology
BIOL3100: Microbiology
ENVS2009: Catchment and Water Resource Management
ENVS3002: Environmental Management Perspectives
ENVS3003: Conservation Biology
ENVS6525: Sustainability and Ecosystem Health
SCIE3500: Research Integrated Learning

BIODIVERSITY, CONSERVATION & ECOLOGICAL SCIENCES MAJOR

COMPULSORY COURSES

Complete all the following compulsory courses:

ENVS1001: Environmental Science Concepts and Methods
ENVS1003: Environmental Values and Ethics
MARI1000: Our Oceans
ENVS2009: Catchment and Water Resource Management
ENVS3003: Conservation Biology
ENVS3004: Ecotoxicology
ENVS3005: Animal Behaviour

DIRECTED COURSES – 2000 level

Complete 20 units from:

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

DIRECTED COURSES – 3000 level

Complete 30 units from:

ECON3006: Environmental Economics
ENVS3009: Advanced Water Science and Resource Management (Callaghan offering only)
ENVS3400: Advanced Research Project (no longer offered)
MARI3320: Experimental Design and Analysis in Ecology
MARI3330: Marine Fisheries Biology and Management (no longer offered)
MARI3410: Coral Reef Biology, Ecology and Sustainability
SRMT3060: Restoration Ecology

CHEMISTRY MAJOR

COMPULSORY COURSES

Complete the following compulsory courses:

CHEM1010: Introductory Chemistry I
CHEM1020: Introductory Chemistry II
CHEM2110: Applied Analytical Chemistry
CHEM2210: Materials Chemistry
CHEM2310: Organic Chemistry
CHEM2410: Physical Chemistry

DIRECTED COURSES – 3000 level

Complete 60 units from:

CHEM3110: Instrumental Chemical Analysis
CHEM3210: Functional Materials
CHEM3310: Molecular Organic Synthesis
CHEM3410: Energy and Structure
CHEM3550: Medicinal and Biological Chemistry
CHEM3560: Materials Chemistry: Solids and Semiconductors (no longer offered)
CEHM3570: Spectroscopic Characterisation of Compounds
CHEM3580: Colloids, Interfaces and Soft Matter

PROGRAM PLAN

BACHELOR OF SCIENCE

ENVIRONMENTAL REMEDIATION MAJOR

COMPULSORY COURSES

Complete all the following compulsory courses:

CHEM1010: Introductory Chemistry I
CHEM1020: Introductory Chemistry II
GEOS1040: Earth's Dynamic Systems
GEOS1050: Earth Processes and Products
CHEM2110: Applied Analytical Chemistry
GEOS2050: River Basin Processes
GEOS2161: Spatial Science
CHEM3110: Instrumental Chemical Analysis
ENVS3004: Ecotoxicology
ENVS3007: Environmental Remediation

DIRECTED COURSES – 2000 level

Complete 10 units from:

CHEM2210: Inorganic Chemistry
CHEM2310: Organic Chemistry
CHEM2610: Environmental Chemistry I (no longer offered)

DIRECTED COURSES – 3000 level

Complete 10 units from:

GEOS3250: Advanced Spatial Science
GEOS3340: Climate Change and Resource Management

GEOLOGY MAJOR

COMPULSORY COURSES

Complete all the following compulsory courses:

GEOS1040: Earth's Dynamic Systems
GEOS1050: Earth Processes and Products
GEOS2080: Earth Science Field Course

DIRECTED COURSES – 2000 level

Complete 40 units from:

ENVS2009: Catchment and Water Resource Management
GEOS2050: River Basin Processes
GEOS2060: Soil Properties and Processes
GEOS2161: Spatial Science
GEOS2170: Optical Mineralogy (no longer offered)
GEOS2190: Structural Geology (no longer offered)
GEOS2200: Earth's Sedimentary Rocks and Environments (no longer offered)
SCIE2223: Weather and Waves

DIRECTED COURSES – 3000 level

Complete 50 units from:

ECON3006: Environmental Economics
ENVS3007: Environmental Remediation
ENVS3001: Environmental Impact Assessment
ENVS3009: Advanced Water Science and Resource Management
GEOS3110: Igneous Petrology and Crustal Evolution (no longer offered)
GEOS3160: Energy Resources (no longer offered)
GEOS3170: Resource and Exploration Geology (no longer offered)
GEOS3220: Coastal Environments and Processes
GEOS3250: Advanced Spatial Science
GEOS3280: Global Change and the Rise of Modern Environments
GEOS3330: Tectonics

INTEGRATED GEOGRAPHY MAJOR

COMPULSORY COURSES

Complete all 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 30 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 50 units from:

ENVS3001: Integrated Impact Assessment
ENVS3006: Surviving the Anthropocene
ENVS3007: Environmental Remediation
ENVS3008: Organisational Placement
GEOG3090: Society and Space
GEOG3240: Globalisation: Cities, Economies (no longer offered)
GEOG3300: Rethinking Development
GEOG3330: Work Integrated Learning in Development Studies and Human Geography (no longer offered)
GEOS3220: Coastal Environments and Processes
GEOS3280: Global Change and the Rise of Modern Environments
GEOS3340: Climate Change and Resource Management
SCIE3500: Research Integrated Learning

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BACHELOR OF SCIENCE

MARINE, COASTAL AND ECOLOGICAL SCIENCES MAJOR

COMPULSORY COURSES

Complete all the following compulsory courses:

MARI1000: Our Oceans
ENVS2009: Catchment and Water Resource Management
MARI2300: Marine Biology
MARI2500: Coastal and Marine Ecosystems Services *
ENVS3004: Ecotoxicology
MARI3300: Integrated Coastal Ecosystems
MARI3320: Ecological Methodology

DIRECTED COURSES – 1000 level

Complete 10 units from:

ENVS1001: Environmental Science Concepts & Methods
ENVS1003: Environmental Values and Ethics

DIRECTED COURSES – 3000 level

Complete 40 units from:

ECON3006: Environmental Economics
ENVS3005: Animal Behaviour
ENVS3009: Advanced Water Science and Resource Management (Callaghan offering only)
ENVS3400: Advanced Research Project (no longer offered)
MARI3410: Coral Reef Biology, Ecology and Sustainability
SCIE3500: Research Integrated Learning

PLANT BIOLOGY MAJOR

COMPULSORY COURSES

Complete all 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
BIOL2010: Biochemistry
BIOL2050: Molecular Genetics
BIOL2090: Microbial Biology
BIOL2220: Plant Adaptation to Climate Change
BIOL3001: Advanced Lab Skills in Biological Sciences
BIOL3100: Microbiology
***BIOL3310:** Plant Cell and Molecular Biology (no longer offered)
***BIOL3330:** Plant Development and Physiology (no longer offered)

* Please choose from the following if you have not completed BIOL3110 and/or BIOL3330:

ENVS2005: Management of Australian Flora
ENVS3002: Environmental Management Perspectives
ENVS3004: Ecotoxicology

WATER, CLIMATE AND SOILS MAJOR

COMPULSORY COURSES

Complete all the following compulsory courses:

GEOS1040: Earth's Dynamic Systems
GEOS1050: Earth Processes and Products
GEOS2050: River Basin Processes
GEOS2060: Soil Properties and Processes
GEOS2080: Earth Science Field Course
GEOS2161: Spatial Science
ENVS3007: Environmental Remediation
GEOS3220: Coastal Environments and Processes
GEOS3250: Advanced Spatial Science
GEOS3340: Climate Change and Resource Management

DIRECTED COURSES – 2000 level

Complete 10 units from:

CHEM2610: Environmental Chemistry I (no longer offered)
ENVS2002: Environmental Legislation and Planning
ENVS2008: The Sustainable Society
ENVS2009: Catchment and Water Resource Management
GEOG2080: Cities & Regions
GEOG2130: Geographies of Development

DIRECTED COURSES – 3000 level

Complete 10 units from:

ENVS3001: Environmental Impact Assessment
ENVS3009: Advanced Water Science & Resource Management
GEOS3160: Energy Resources (no longer offered)
GEOS3280: Global Change and the Rise of Modern Environments