

BACHELOR OF SCIENCE

DISCIPLINE ELECTIVE PATHWAYS - CALLAGHAN



These pathways have been created to provide guidance for Bachelor of Science students wishing to specialise in a second discipline area with their elective courses.

Each pathway has been selected to complement the content of the Bachelor of Science program with consideration of pre-requisites. Please note that these pathways are suggestions only and will not be noted formally on the final degree certificate.

Students are welcome to enrol in any elective provided that they satisfy the pre-requisites, and they adhere to the rules regarding maximum number of 1000 level courses in their program. For a full list of UON courses, visit the [course handbook](#).



BIOLOGICAL SCIENCES

| ANIMAL BIOLOGY | | CELL AND MOLECULAR BIOLOGY | |
|-------------------------|---|----------------------------|--------------------------------|
| Complete the following: | | Complete the following: | |
| BIOL1001 | Molecules, Cells and Organisms | BIOL1001 | Molecules, Cells and Organisms |
| BIOL1002 | Organisms to Ecosystems | BIOL1002 | Organisms to Ecosystems |
| BIOL2020 | Animal Physiology and Development | BIOL2050 | Molecular Genetics |
| BIOL3020 | Reproductive Physiology and Development | BIOL3090 | Molecular Biology |

| MICROBIOLOGY | | PLANT BIOLOGY | |
|-------------------------|--------------------------------|-------------------------|----------------------------------|
| Complete the following: | | Complete the following: | |
| BIOL1001 | Molecules, Cells and Organisms | BIOL1001 | Molecules, Cells and Organisms |
| BIOL1002 | Organisms to Ecosystems | BIOL1002 | Organisms to Ecosystems |
| BIOL2090 | Microbial Biology | BIOL2220 | Plant Cell Development |
| BIOL3100 | Microbiology | BIOL3330 | Plant Development and Physiology |

CHEMISTRY

CHEMISTRY

Complete the following:

CHEM1010 Introductory Chemistry I

CHEM1020 Introductory Chemistry II

Choose 20 units from below:

CHEM2110 Analytical Chemistry

CHEM2201 Analytical and Medicinal Chemistry

CHEM2210 Inorganic Chemistry

CHEM2310 Organic Chemistry

CHEM2410 Physical Chemistry

CHEM2610 Environmental Chemistry I

CHEM3110 Instrumental Chemical Analysis

CHEM3310 Molecular Organic Synthesis

CHEM3410 Energy and Structure

EARTH SCIENCE

EARTH SCIENCE

Complete the following:

GEOS1040 Earth's Dynamic Systems

GEOS1050 Earth Processes and Products

Choose 20 units from below:

GEOS2050 River Basin Processes

GEOS2060 Soil Properties and Processes

GEOS2080 Earth Science Field Course

GEOS2161 Spatial Science

GEOS2170 Optical mineralogy

GEOS2190 Structural Geology

GEOS2200 Earth's Sedimentary Rocks & Environments

GEOS3110 Igneous Petrology and Crustal Evolution

GEOS3160 Energy Resources

GEOS3220 Coastal Environments and Processes

GEOS3250 Advanced Spatial Science

GEOS3340 Climate Change and Resource Management

ENVS3007 Environmental Remediation

ENVIRONMENTAL SCIENCE

| BIODIVERSITY AND CONSERVATION | | SUSTAINABLE RESOURCE MANAGEMENT | | EXTENDED ENVIRONMENTAL REMEDIATION | |
|-------------------------------|---|---------------------------------|---|------------------------------------|------------------------------------|
| Choose 10 units from below: | | Complete the following: | | Complete the following: | |
| ENVS1001 | Environmental Science: Concepts & Methods | ENVS1001 | Environmental Science: Concepts & Methods | BIOL1002 | Organisms to Ecosystems |
| ENVS1003 | Environmental Values and Ethics | ENVS1003 | Environmental Values and Ethics | GEOS2060 | Soil Properties and Processes |
| Complete 30 units from below: | | ENVS2009 | Catchment and Water Resource Management | ENVS2006 | Ecology and Management of Wildlife |
| ENVS2004 | Ecology | Choose 10 units from below: | | SRMT3060 | Restoration Ecology |
| ENVS2005 | Management of Australian Flora | ENVS2005 | Management of Australian Flora | | |
| ENVS2006 | Ecology and Management of Wildlife | ENVS2006 | Ecology and Management of Wildlife | | |
| ENVS3005 | Animal Behaviour | ENVS2008 | The Sustainable Society | | |

GEOGRAPHY

| GEOGRAPHY | |
|-----------------------------|---------------------------------|
| Complete the following: | |
| GEOS1040 | Earth's Dynamic Systems |
| GEOG1020 | Introduction to Human Geography |
| GEOS2161 | Spatial Science |
| Choose 10 units from below: | |
| GEOG2080 | Cities and Regions |
| GEOG2130 | Geographies of Development |

LIVING UNIVERSE

| LIVING UNIVERSE | |
|-------------------------|--------------------------------------|
| Complete the following: | |
| GEOS1040 | Earth's Dynamic Systems |
| BIOL1002 | Organisms to Ecosystems |
| PHYS2100 | Introduction to Astronomy |
| SCIE2019 | Astrobiology: Life Beyond our Planet |

MATHEMATICS AND STATISTICAL SCIENCES

| MATHEMATICS | | STATISTICS | |
|---|---|-----------------------------|---|
| <p>This elective pathway has been designed for those who have completed MATH1110 or MATH1210 as their Mathematics Directed course, or have an equivalent background. For students with MATH1210, see note below.</p> <p>Choose 10 units from below:</p> | | Complete the following: | |
| | | STAT2000 | Applied Statistics and Research Methods |
| | | STAT2010 | Fundamentals of Statistics |
| | | STAT2020 | Predictive Analytics |
| MATH1120 | Mathematics for Engineering, Science and Technology 2 | Choose 10 units from below: | |
| MATH1220 | Discovery Mathematics 2 | ENGG1003 | Introduction to Procedural Programming |
| Complete the following: | | INFT1004 | Introduction to Programming |
| MATH2310 | Calculus of Science and Engineering | SENG1110 | Object Oriented Programming |
| Choose 10 units from below: | | | |
| MATH2320 | Linear Algebra | | |
| MATH2330 | Analysis | | |
| MATH2340 | Linearity and Continuity | | |
| MATH3242 | Complex Analysis | | |

PSYCHOLOGICAL SCIENCE

PSYCHOLOGY

Complete the following:

| | |
|-----------------|---------------------------|
| PSYC1010 | Psychology Introduction 1 |
| PSYC1020 | Psychology Introduction 2 |
| PSYC2300 | Cognitive Psychology |
| PSYC2400 | Biological Psychology |

PHYSICS

PHYSICS

Complete the following:

| | |
|-----------------|---------------------|
| PHYS1210 | Advanced Physics I |
| PHYS1220 | Advanced Physics II |

Choose 20 units from below:

| | |
|-----------------|---------------------|
| PHYS2111 | Classical Physics 1 |
| PHYS2112 | Classical Physics 2 |
| PHYS2211 | Modern Physics 1 |
| PHYS2212 | Modern Physics 2 |
| PHYS3111 | Biophysics |
| PHYS3112 | Photonics |
| PHYS3212 | Nanomaterials |