

Bachelor of Mathematics/Bachelor of Science



Commencing in 2016



Studying at 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 prior advice from your [Program Advisor](#) to ensure you remain on track.



Semester 1

Year 1	<u>STAT1070</u> Statistics for the Sciences	<u>SCIENCE MAJOR</u> 1000 level	<u>SCIENCE MAJOR</u> 1000 level	<u>MATH1210</u> Mathematical Discovery 1 or <u>MATH1110</u> Mathematics 1
Year 2	<u>MATH2310</u> Calculus of Science and Engineering	<u>SCIENCE MAJOR</u> 2000 level	<u>SCIENCE MAJOR</u> 2000 level or <u>APPROVED SCIENCE</u>	<u>ELECTIVE</u> or <u>MATH2340</u> Linearity and Continuity
Year 3	<u>MATH MAJOR</u> 2000 level	<u>SCIENCE MAJOR</u> 3000 level	<u>SCIENCE MAJOR</u> 3000 level or <u>APPROVED SCIENCE</u>	<u>ELECTIVE</u>
Year 4	<u>MATH MAJOR</u> 3000 level	<u>MATH MAJOR</u> 3000 level	<u>SCIENCE MAJOR</u> 3000 level	<u>ELECTIVE</u>

Semester 2

<u>MATH1800</u> Mathematical Modelling	<u>SCIENCE MAJOR</u> 1000 level or <u>APPROVED SCIENCE</u>	<u>SCIENCE MAJOR</u> 1000 level or <u>APPROVED SCIENCE</u>	<u>MATH1220</u> Mathematical Discovery 2 or <u>MATH1120</u> Mathematics 2
<u>MATH2320</u> Linear Algebra	<u>SCIENCE MAJOR</u> 2000 level	<u>SCIENCE MAJOR</u> 2000 level or <u>APPROVED SCIENCE</u>	<u>ELECTIVE</u>
<u>MATH MAJOR</u> 2000 level	<u>SCIENCE MAJOR</u> 3000 level	<u>SCIENCE MAJOR</u> 3000 level or <u>APPROVED SCIENCE</u>	<u>ELECTIVE</u>
<u>MATH MAJOR</u> 3000 level	<u>MATH MAJOR</u> 3000 level	<u>SCIENCE MAJOR</u> 3000 level	<u>ELECTIVE</u>

Program Plan Key: = Core = Science Major = Mathematics Major = Alternate Pathway = Standard Pathway = Approved Science = Elective

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 - 40 units. 20 units of your Core courses are also counted towards your Major.
- ✓ Science Major - A minimum of 90 units (see Major sequences for individual requirements).
- ✓ Mathematics Major - 80 units, including all Core, Compulsory and Directed courses, with a minimum of 40 units at 3000 level.
- ✓ Alternate Pathway - 30 units. Students who have obtained a Band 5 in NSW HSC Mathematics, or have completed NSW HSC Extension 1, or equivalent should complete the Alternate Pathway. For further information please see [Enrolling in Maths](#). OR
- ✓ Standard Pathway - 20 units. Students who have obtained a Band 4 in HSC NSW Extension 1, or have completed NSW HSC Extension 2, or equivalent should complete the Standard Pathway. For further information please see [Enrolling in Maths](#).
- ✓ Approved Science - A minimum of 30 units, depending on Science major requirements.
- ✓ Electives - 60 units for Standard pathway students, or 50 units for Alternate Pathway students.
- ✓ Students need to complete a minimum of 160 units of Bachelor of Science courses (including 60 units of 100 level courses, 20 units of directed courses, and a minimum 90 unit major).
- ✓ A number of electives to reach the total of 320 units. Visit the [Course Handbook](#) to see a list of available Electives.
- ✓ The duration of this program is 4 years 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](#).

The [Program Handbook](#) has valuable information on program structure and requirements, if you are intending on studying part time or varying from this program plan please seek prior advice from your [Program Advisor](#).



Bachelor of Mathematics/ Bachelor of Science Mathematics Majors

A Major is an area of study that you wish to focus on in your program. A course will count towards your Major if it is listed as a compulsory or directed course under the relevant major in the [Program Handbook](#). In each major you must complete 80 units, including 20 units of core courses.

Majors Courses (Core and Compulsory Courses listed in **ORANGE**)

Subject to change - Please refer to the program handbook for up to date information.

Majors

Courses (Core and Compulsory Courses listed in **ORANGE**)

<p>Applied Mathematics</p>	<p>Core courses that count towards Major MATH1800 Mathematical Modelling STAT1070 Statistics for the Sciences</p> <p>Compulsory Courses MATH2730 Operations Research 1 MATH2800 Differential Equations</p> <p>Directed Courses Students must complete 40 units of 3000 level Directed courses, including <u>at least one</u> of the following courses: MATH3840 Optimisation in Business and Industry MATH3850 Industrial Project</p>	<p>Pure Mathematics</p>	<p>Core courses that count towards Major MATH2310 Calculus of Science and Engineering MATH2320 Linear Algebra</p> <p>Compulsory Courses MATH2330 Analysis</p> <p>Directed Courses Students must complete 10 units of 2000 level Directed Courses Students must complete 40 units of 3000 level Directed Courses, including <u>at least one</u> of the following courses: MATH3120 Algebra MATH3170 Number Theory MATH3840 Optimisation in Business and Industry MATH3850 Industrial Project</p>
<p>Statistics</p>	<p>Core courses that count towards Major MATH1800 Mathematical Modelling STAT1070 Statistics for the Sciences</p> <p>Compulsory Courses STAT2000 Applied Statistics and Research Methods STAT2010 Fundamentals of Statistics STAT3010 Statistical Inference</p> <p>Directed Courses Students must complete 30 units of Directed Courses.</p>	<p>Studies In Mathematics And Statistics (SMS)</p>	<p>Core courses that count towards Major MATH2310 Calculus of Science and Engineering MATH2320 Linear Algebra</p> <p>Directed Courses Students must complete 20 units of 2000 level Directed Courses including <u>at least one</u> of the following courses: MATH2330 Analysis MATH2730 Operations Research 1 STAT2000 Applied Statistics and Research Methods</p> <p>Students must complete 40 units of 3000 level Directed Courses, including <u>at least one</u> of the following courses: MATH3120 Algebra MATH3170 Number Theory MATH3840 Optimisation in Business and Industry MATH3850 Industrial Project</p>

Bachelor of Mathematics/ Bachelor of Science Science Majors

A Major is an area of study that you wish to focus on in your program. You must complete at least 90 units in your Major. A course will count towards your Major if it is listed as a compulsory or directed course under the relevant Major in the [handbook](#).

Majors	Courses (Compulsory Courses listed in ORANGE)	Majors	Courses (Compulsory Courses listed in ORANGE)
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Subject to change- Please refer to the program handbook for up to date information.

Biological Science Major Sequence	BIOL1001 Molecules, Cells and Organisms BIOL1002 Organisms to Ecosystems BIOL1003 Professional Skills for Biological Sciences 1 BIOL2001 Molecular Laboratory Skills for Biological Sciences BIOL2002 Laboratory Skills in Biological Systems BIOL3001 Advanced Laboratory Skills in Biological Sciences 2000 level Biology Directed Courses (10 Units) 3000 level Biology Directed Courses (30 Units)	Earth Sciences Major Sequence	GEOS1040 Earth's Dynamic Systems GEOS1050 Earth Processes and Products GEOS2080 Earth Science Field Course GEOS2161 GIS and Remote Sensing GEOS3250 Geographic Information Systems 2000 level Earth Science Directed Courses (10 Units) 3000 level Earth Science Directed Courses (30 Units)
Chemistry Major Sequence	CHEM1010 Introductory Chemistry I CHEM1020 Introductory Chemistry II CHEM2110 Analytical Chemistry CHEM2210 Inorganic Chemistry CHEM2310 Organic Chemistry CHEM2410 Physical Chemistry CHEM3590 Chemistry Research Project 3000 level Chemistry Directed Courses (30 Units)	Geography Major Sequence	GEOG1020 Introduction to Human Geography GEOG1040 Earth's Dynamic Systems GEOS2161 GIS and Remote Sensing GEOS3250 Geographic Information Systems 2000 level Geography Directed Courses (20 Units) 3000 level Geography Directed Courses (30 Units)
Photonics Major Sequence (No directed Courses in this major)	ELEC1300 Electrical Engineering 1 PHYS1210 Advanced Physics I PHYS1220 Advanced Physics II PHYS2160 Modern Optics PHYS2260 Electromagnetism ELEC3540 Analog and Digital Communications PHYS3310 Lasers and Applications PHYS3320 Optical Communications PHYS3330 Industrial Project and Seminar PHYS3345 Optical Fibre Technology PHYS3360 Advanced Electromagnetism	Physics Major Sequence	PHYS1210 Advanced Physics I PHYS1220 Advanced Physics II PHYS2170 Quantum Mechanics and Semiconductor Physics PHYS2260 Electromagnetism PHYS3330 Industrial Project and Seminar 2000 level Physics Directed Courses (10 Units) 3000 level Physics Directed Courses (30 Units)

Bachelor of Science Major Sequences Continued.

A major is an area of study that you wish to focus on in your program. You must complete at least 90 units in your major. A course will count towards your major if it is listed as a compulsory or directed course under the relevant major in the [handbook](#).

Major Courses (Compulsory Courses listed in **ORANGE**)

Subject to change- Please refer to the program handbook for up to date information.

Psychology Major Sequence	PSYC1010 Psychology Introduction 1 PSYC1020 Psychology Introduction 2 PSYC2300 Cognitive Psychology STAT2000 Applied Statistics and Research Methods PSYC3000 Advanced Research Methods and Statistics in Psychology PSYC3001 Advanced Psychological Measurement 2000 level Psychology Directed Courses (10 Units) 3000 level Psychology Directed Courses (20 Units)		
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Helpful Hints & Tips

ENROLMENT HELP



Need help? >>
Ask UON >>



How do I use the Web Timetable? >>

RULES

It is important to follow this Program Plan.

You cannot repeat a course you've passed to try and get a better grade.

You cannot enrol in any extra courses not required by your program.

INFO FOR NEW STUDENTS



First year undergraduate students usually only enrol in 1000 level courses >>

New Postgraduate students should only enrol in 6000 level courses >>



Find out all you need to know about getting started at uni >>

UNDERSTANDING COURSES & PROGRAMS



Not sure what courses to study? >>



Understanding program and course jargon >>



Understanding UON Jargon >>

PRIOR STUDY



Check you have met the assumed knowledge and requisites for courses before enrolling >>



Have you studied elsewhere or transferred programs? Don't forget to apply for credit >>

CONSIDERING A BREAK?



Need to take a break? This is called a 'leave of absence'. Check if you are eligible >>



Planning on going overseas? Keep electives free, so it's easier for you to receive credit for your overseas studies >>



UON offers a range of support services to assist with your health and wellbeing >>

MORE QUESTIONS?

We are here to answer questions about your program. Talk to us your way!

- Ask UON
- 1300 ASK UON
- Visit a Student Hub
- Message us on Facebook
- or Twitter
- UONline via myUON