

Bachelor of Science (BSCI) - BSc

QTAC code (Australian and New Zealand applicants): Mathematics & Statistics (Toowoomba campus: 906351; External: 906355); Wine Science (Toowoomba campus: 906115); Plant Agricultural Science (Toowoomba campus: 906991; External: 906995); Food Science (Toowoomba campus: 906981; External: 906985); Information Technology (Toowoomba campus: 906791; External: 906795); Psychology Extended (External: 906365; Ipswich campus: 936361); Wildlife Management (Toowoomba campus: 907431; External: 907435); Mathematics (Toowoomba campus: 906881; Online: 906885); Statistics (Toowoomba campus: 906201; External: 906205; Ipswich campus: 936201); Psychology (Toowoomba campus: 906331; External: 906335; Ipswich campus: 936331); Biology (Toowoomba campus: 906831; External: 906835); Environment & Sustainability (Toowoomba campus: 906261; External: 906265); Computing (Toowoomba campus: 906761; External: 906765); Physical Sciences (External: 906125); Astronomical & Space Sciences (External: 906665); Human Physiology (Toowoomba campus: 906821; External: 906825); Counselling (Toowoomba campus: 906551; External: 906555; Ipswich campus: 936551); Animal Science (Toowoomba campus: 906771; External: 906775)

CRICOS code (International applicants): 042230E

Programs at USQ are regularly reviewed to ensure they remain professionally relevant, in order to enhance the graduate outcomes of our students. This program is currently being re-accredited and is, as a consequence, likely to undergo some changes. Full details will be available when it is approved. If you have any questions, please [contact us](#) directly.

	On-campus#^†*~&@	External<&	Online
Start:	Semester 1 (February) Semester 2 (July) Semester 3 (November)	Semester 1 (February) Semester 2 (July) Semester 3 (November)	Semester 1 (February) Semester 2 (July)
Campus:	Ipswich, Toowoomba	-	-
Fees:	Commonwealth supported place Domestic full fee paying place International full fee paying place	Commonwealth supported place Domestic full fee paying place International full fee paying place	Commonwealth supported place Domestic full fee paying place International full fee paying place
Residential school:		Toowoomba, Ipswich	
Standard duration:	3 years full-time, 6 years part-time, 9 years maximum		

Footnotes

- # The Psychology Extended major (16 units) is only available on campus at USQ Ipswich for a Semester 1 entry. Students can complete this extended major at other campuses through a mixture of on-campus and online courses. The Psychology major (12 units) is offered on campus at USQ Ipswich and Toowoomba and online.
- ^ The Physical Sciences and Astronomical and Space Sciences majors are only offered by external mode. Students will need to attend residential schools.
- † Not all majors are available to commence in Semester 3 at USQ Toowoomba.
- * The Wine Science, Physical Sciences, Mathematics and Statistics, Statistics and Astronomical and Space Sciences majors are not available to international students studying on-campus.
- ~ The Counselling major is not available to international students studying on campus. Domestic students can complete this major on campus through a mixture of on-campus and external courses.
- & The Animal Science major is only available on campus at USQ Toowoomba and externally, with residential schools held at USQ Toowoomba. This major is available to international on-campus students.
- @ The Wildlife Management major is only available on campus at USQ Toowoomba and externally, with residential schools held at USQ Toowoomba or off-site. This major is available to international on-campus students as long as the student meets the on-campus requirement through minor/elective/2nd major courses.
- < The external offering of the Astronomical and Space Sciences major is available to international students residing off-campus in Australia, however, there are highly recommended attendance requirements at multiple residential schools held at USQ Toowoomba throughout the duration of the program. The external offering is unsuitable for international students studying overseas.

Contact us

Future Australian and New Zealand students	Future International students	Current students
Ask a question Freecall (within Australia): 1800 269 500 Phone (from outside Australia): +61 7 4631 5315 Email: study@usq.edu.au	Ask a question Phone: +61 7 4631 5543 Email: international@usq.edu.au	Ask a question Freecall (within Australia): 1800 007 252 Phone (from outside Australia): +61 7 4631 2285 Email: usq.support@usq.edu.au

Professional accreditation

The Information Technology major of this program is accredited at professional level by the [Australian Computer Society](#) and, through the Seoul Accord, is recognised in other countries.

The Bachelor of Science (Psychology) major is fully accredited by the [Australian Psychology Accreditation Council](#) as a three-year sequence of study. The Bachelor of Science (Psychology Extended) major will automatically meet full accreditation with the Australian Psychology Accreditation Council as a three-year sequence of study.

The 8 unit Counselling major in the Bachelor of Science (BSCI) is not accredited externally. Residential schools within the [BSCI Bachelor of Science \(Counselling\)](#) major may assist students accrue hours of face to face instruction/tuition often required by professional counselling associations as part of membership criteria.

Program objectives

On completion of this program students should be able to:

- Exhibit a broad and coherent knowledge base, with a level of depth in one or more science disciplines, suitable to undertake professional work and/or further study.
- Apply a range of cognitive and technical skills which reflect the underlying principles of one or more science disciplines.
- Display well developed cognitive, technical and communication skills to select and apply relevant methods and technologies and present information to a range of audiences.
- Critically analyse, consolidate and evaluate information to construct and implement solutions to unpredictable and complex problems.
- Work autonomously and collaboratively to construct and implement problem solving paradigms to address relevant issues.
- Apply well directed judgement and responsibility, in diverse contexts, which are consistent with the social, moral and legal responsibilities of professional scientists.

Australian Qualifications Framework

The Australian Qualifications Framework (AQF) is a single national, comprehensive system of qualifications offered by higher education institutions (including universities), vocational education and training institutions and secondary schools. Each AQF qualification has a set of descriptors which define the type and complexity of knowledge, skills and application of knowledge and skills that a graduate who has been awarded that qualification has attained, and the typical volume of learning associated with that qualification type.

This program is at AQF Qualification Level 07. Graduates at this level will have broad and coherent knowledge and skills for professional work and/or further learning.

The full set of levels criteria and qualification type descriptors can be found by visiting www.aqf.edu.au.

Program Information Set

View USQ's admission criteria, student profiles and a summary of all offers made under [Course Admission Information Set](#) via the QTAC website.

Admission requirements

To be eligible for admission, applicants must satisfy the following requirements:

- Have achieved a minimum Australian Tertiary Admission Rank (ATAR) of **65.6**, or equivalent qualification.[^]
- English Language Proficiency requirements for Category 2.

Additional pre-requisites and recommended prior study for individual majors

Animal Science (8 unit major)

Subject Pre-requisite: General Mathematics (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- [Assumed knowledge](#) expectations: English.

Astronomical and Space Sciences (12 unit major)

Subject Pre-requisite: Mathematical Methods (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- [Assumed knowledge](#) expectations: English.
- Recommended prior study: One of Biology, Chemistry or Physics or equivalent.

Biology (8 unit major)

Subject Pre-requisite: General Mathematics (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- [Assumed knowledge](#) expectations: English.
- Recommended prior study: Mathematical Methods and one of Biology, Chemistry or Physics or equivalent.
If students do not have the recommended Mathematical Methods Level for entry then they will be required to undertake [MAT1000 Mathematics Fundamentals](#) as an elective.

Computing (8 unit major)

Subject Pre-requisite: General Mathematics (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- [Assumed knowledge](#) expectations: English.
- Recommended prior study: Mathematical Methods* or equivalent.

* USQ College has courses available via [Tertiary Preparation Program](#) which will allow students to up-skill in Mathematics prior to entry.

Counselling (8 unit major)

Applicants are advised to also address the following:

- Assumed knowledge expectations: English; General Mathematics or equivalent.

Environment and Sustainability (8 unit major)

Subject Pre-requisite: General Mathematics (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.
- Recommended prior study: Mathematical Methods and one of Biology, Chemistry or Physics or equivalent. If students do not have the recommended Mathematical Methods Level for entry then they will be required to undertake **MAT1000 Mathematics Fundamentals** as an elective.

Food Science (8 unit major)

Subject Pre-requisite: General Mathematics (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.
- Recommended prior study: Mathematical Methods and one of Biology, Chemistry or Physics or equivalent. If students do not have the recommended Mathematical Methods Level for entry then they will be required to undertake **MAT1000 Mathematics Fundamentals** as an elective.

Human Physiology (8 unit major)

Subject Pre-requisite: General Mathematics (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.
- Recommended prior study: Mathematical Methods and one of Biology, Chemistry or Physics or equivalent. If students do not have the recommended Mathematical Methods Level for entry then they will be required to undertake **MAT1000 Mathematics Fundamentals** as an elective.

Information Technology (12 unit major)

Subject Pre-requisite: General Mathematics (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.
- Recommended Prior Study: Mathematical Methods * or equivalent.

* USQ College has courses available via **Tertiary Preparation Program** which will allow students to up-skill in Mathematics prior to entry.

Mathematics (8 unit major)

Subject Pre-requisite: Mathematical Methods (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.

Mathematics and Statistics (12 unit major)

Subject Pre-requisite: Mathematical Methods (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.

Physical Sciences (8 unit major)

Subject Pre-requisite: Mathematical Methods (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.
- Recommended prior study: One of Biology, Chemistry or Physics or equivalent.

Plant Agricultural Science (8 unit major)

Subject Pre-requisite: General Mathematics (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.
- **Recommended Prior Study:** Mathematical Methods and one of Biology, Chemistry or Physics or equivalent. If students do not have the recommended Mathematical Methods Level for entry then they will be required to undertake **MAT1000 Mathematics Fundamentals** as an elective.

Psychology (12 unit major)

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English; General Mathematics or equivalent.

Psychology Extended (16 unit major)

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English; General Mathematics or equivalent.

Statistics (8 unit major)

Subject Pre-requisite: Mathematical Methods (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.

Wildlife Management (8 unit major)

Subject Pre-requisite: General Mathematics (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.
- **Recommended prior study:** Mathematical Methods and one of Biology, Chemistry or Physics or equivalent. If students do not have the recommended Mathematical Methods Level for entry then they will be required to undertake **MAT1000 Mathematics Fundamentals** as an elective.

Wine Science (8 unit major)

Subject Pre-requisite: General Mathematics (Units 3 & 4, C) or equivalent.

Applicants are advised to also address the following:

- **Assumed knowledge** expectations: English.
- **Recommended prior study:** Mathematical Methods and one of Biology, Chemistry or Physics or equivalent. If students do not have the recommended Mathematical Methods Level for entry then they will be required to undertake **MAT1000 Mathematics Fundamentals** as an elective.

All students are required to satisfy the applicable **English language requirements**.

If students do not meet the English language requirements they may apply to study a University-approved **English language program**. On successful completion of the English language program, students may be admitted to an award program.

[^] These are determined by the University for specific programs each Semester. The 2021 ATAR and tertiary entrance ranks are based on agreed QTAC schedules which assess formal study at Year 12 or **equivalent level**, tertiary, preparatory, professional or vocational qualifications or work experience, as detailed in the QTAC Assessment of Qualifications Manual and QTAC Assessor Guidelines.

Adjustment factors may help you get into the program of your choice by increasing your entrance rank. The additional points don't apply to all applicants or all programs. Please read the information about USQ's **Adjustment Factors** carefully to find out what you may be eligible for.

Requirements for professional experience placements

Practical experience is an integral component of the Wildlife Management major and each student is required to undertake and satisfactorily complete 105 hours of practical experience.

Progression into practical courses is dependent upon a pass grade in theoretical and other practical courses which have been set as prerequisites.

Applicants must be willing to undertake and submit the requirements of the University of Southern Queensland for practical placement.

Please refer to the applicable Professional Placement Handbook for Wildlife Management students.

Mandatory documents required prior to commencing industry placement:

- Resume
- USQ Student Declaration
- USQ Placement Request Form
- Vaccinations for Q fever, Tetanus and Hepatitis B

Program fees

Commonwealth supported place

A Commonwealth supported place is where the Australian Government makes a contribution towards the cost of a students' higher education and students pay a [student contribution amount](#), which varies depending on the courses undertaken. Students are able to calculate the fees for a particular course via the [Course Fee Schedules](#).

Commonwealth Supported students may be eligible to defer their fees through a Government loan called [HECS-HELP](#).

Domestic full fee paying place

Domestic full fee paying places are funded entirely through the full fees paid by the student. Full fees vary depending on the courses that are taken. Students are able to calculate the fees for a particular course via the [Course Fee Schedule](#)

Domestic full fee paying students may be eligible to defer their fees through a Government loan called [FEE-HELP](#) provided they meet the residency and citizenship requirements.

Australian citizens, Permanent Humanitarian Visa holders, Permanent Resident visa holders and New Zealand citizens who will be resident outside Australia for the duration of their program pay full tuition fees and are not eligible for [FEE-Help](#).

International full fee paying place

International students pay full fees. Full fees vary depending on the courses that are taken and whether they are studied on-campus, via distance education/online. Students are able to calculate the fees for a particular course via the [Course Fee Schedules](#).

Program structure

The Bachelor of Science (BSCI) consists of 24 units comprising 4 core units of Foundation Studies courses with either a first 16, 12 or 8-unit major, a second 8-unit major or 4-unit minor and/or approved elective courses as specified for each major as follows:

- one 16-unit BSCI major, 4-unit Foundation Studies and one 4-unit minor
- one 16-unit BSCI major, 4-unit Foundation Studies and 4 units of elective courses
- one 12-unit BSCI major, 4-unit Foundation Studies and one 8-unit major^{*^}
- one 12-unit BSCI major, 4-unit Foundation Studies, one 4-unit minor and 4 units of elective courses
- one 12-unit BSCI major, 4-unit Foundation Studies and 8 units of elective courses
- one 8-unit BSCI major, 4-unit Foundation Studies, one 8-unit major^{*} and 4 units of elective courses^{*}

- one 8-unit BSCI major, 4-unit Foundation Studies and 12 units of elective courses approved by the Program Director.

* The second 8-unit major can be chosen from any approved 8-unit major in the University. Students should ensure that they complete the appropriate courses in their second major in order to graduate with a double major in the Bachelor of Science. The selection of a suitable block of Foundation Studies courses will be based on the majors chosen and will require Program Director approval.

^ The Information Technology and Computing Majors, and the Mathematics and the Mathematics and Statistics majors cannot be combined towards a double major in the program.

At least four courses in the program will be at level 3 and no more than 10 courses in the program will be at level 1. Where two majors are chosen which have some compulsory courses in common, the overlap will be made up by taking extra major approved courses defined in those majors.

Required time limits

Students have a maximum of 9 years to complete this program.

Core courses

Foundation Studies

The Foundation knowledge courses for each major are listed in the table below. Students wishing to vary foundation studies must contact the Program Director for approval.

	Mathematics and Statistics, Mathematics, Statistics, Physical Sciences and Astronomical and Space Sciences ^	Computing, Information Technology ^	Animal Science, Plant Agricultural Science, Environment & Sustainability, Food Science, Human Physiology, Biology, Wildlife Management, Wine Science ^	Counselling, Psychology and Psychology Extended
Communication Studies	CMS1100 *	CMS1000	CMS1100 *	CMS1000
Enabling Studies 1	SCI1001	CSC1401	SCI1001	SCI1001
Statistics	STA1003	STA1003	STA1003	STA1003
Enabling Studies 2	CSC1401	MAT1101 ^	MAT1100 ^#	PSY1030

Footnotes

^ If students do not have the recommended Mathematical Methods or equivalent level for entry then they will be required to undertake [TPP7182 Mathematics Tertiary Preparation 2](#) or [MAT1000 Mathematics Fundamentals](#) as an elective before they attempt [MAT1100 Foundation Mathematics](#) or [MAT1101 Discrete Mathematics for Computing](#).

* Students can study [CMS1000 Communication and Scholarship](#) externally instead of [CMS1100 Communicating in the Sciences](#).

This course is equivalent to MAT1500 .

Major studies

The following majors are available in the Bachelor of Science:

16-unit major (contain at least four Level 3 courses)

- Psychology Extended

12-unit majors (contain at least three Level 3 courses)

- Mathematics & Statistics
- Information Technology
- Psychology
- Astronomical and Space Sciences

8-unit majors (contain at least two Level 3 courses)

- Animal Science
- Biology
- Computing
- Counselling
- Environment and Sustainability
- Food Science
- Human Physiology
- Mathematics
- Physical Sciences
- Plant Agricultural Science
- Statistics
- Wildlife Management
- Wine Science

Psychology Extended (16-unit major)

Psychology Extended major objectives

The Bachelor of Science (Psychology Extended) program aims to produce graduates who have advanced knowledge and skills in psychology. Participation in the capstone experience will provide students with the acquired ability to research independently, apply theory and develop academic expertise in their chosen focus of area in psychology. The Program will extend student's appreciation of the contributions made by psychologists to society.

Many people who study psychology will not go on to become psychologists, but will find their training in psychology to be highly relevant and useful in their lives and work. Those who do become psychologists may work in a variety of settings including hospitals, schools, government bodies, large corporations, or in private practice. The Psychology Extended major will provide students with a broader knowledge of psychology-related knowledge and skills, which more than satisfy the minimum requirements for affiliate membership of relevant professional bodies, most notably the Australian Psychological Society.

Graduates who have completed the Extended major in Psychology will be able to:

- apply knowledge of the breadth and depth of the major fields in contemporary Psychology to describe and explain human behaviour in multiple contexts:
- systematically apply this knowledge in specific contexts such as mental health (clinical psychology), the workplace (organisational psychology), legal settings (law and psychology), education or sport psychology.
- conduct research and report the findings to lay persons and the scientific community at large
- prepare and develop a portfolio, which documents learning of identified outcomes and reflections of metacognitive processes
- develop a broad range of skills, which are suited to occupations requiring the study or application of behavioural science in both the public and private sector

Psychology Extended Major Courses

This is a 16-unit extended major. Along with the Foundation Studies courses prescribed above, students must take the following 16 units of courses:

Courses	Semester(s) Offered	Mode
PSY1010 Foundation Psychology A	1, 3	ONC, ONL
PSY1020 Foundation Psychology B	1 (ONL only), 2	ONC, ONL
PSY2010 Social Processes of Behaviour	1	ONC, ONL
PSY2020 Motivation and Emotion	1	ONC, ONL
PSY2030 Developmental Psychology	2	ONC, ONL
PSY2040 Human Information Processing	2	ONC, ONL
PSY2100 Research Methods in Psychology A	1	ONC, ONL

PSY3010 Assessment of Behaviour	1	ONC, ONL
PSY3030 Abnormal Psychology	1	ONC, ONL
PSY3050 Counselling Psychology	2	ONC, ONL
PSY3060 Learning and Behaviour Change	1	ONC, ONL
PSY3111 Research Methods in Psychology B	2	ONC, ONL
PSY4080 Psychology Complementary Studies A *	1	ONC, EXT
PSY4090 Psychology Complementary Studies B *	2	ONC, EXT
Two third-year level courses from the below list of psychology approved courses		

Footnotes

* The on-campus offering will not be available in 2022

To complete the award, students taking a 16-unit extended major must additionally undertake one of the following choices:

- 4 units of general elective courses; these can be selected from the list of psychology approved courses, or from any discipline, and may be at any year level, or
- one 4-unit minor.

Minor studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives can be selected from the table of psychology approved courses below or from any courses at Levels 1, 2 and 3 offered by USQ subject to satisfaction of pre-requisite requirements, timetabling constraints, quotas, and program requirements. Please note that Diploma of Science Foundation core courses are not permitted as electives and students must not take more than ten level 1 courses in the program overall.

Unsuitable electives

For various reasons, the following courses will not be approved as electives for students majoring in Psychology in the Bachelor of Science program:

[DIP1002 Strategies for Successful Study](#), [DIP1003 Essential Mathematics](#) and [DIP1004 Mathematical Literacy](#).

Psychology Extended approved elective courses

Courses	Semester(s) Offered	Mode
PSY3110 Clinical Health Psychology	2	ONL
PSY3250 Sport and Exercise Psychology	2	ONL
PSY3730 Industrial and Organisational Psychology [#]	1	ONL

Footnotes

This course will not be offered in 2022

Note: The psychology approved courses offered can change from year to year. For information about which psychology approved courses are being offered in any particular year, students are directed to the course specification site for that particular year. Students are responsible for ensuring that they do not enrol in, or continue to be enrolled in, courses for which they have not satisfied the enrolment requirements (e.g., the necessary pre-requisites).

The recommended enrolment patterns for students with no exemptions, and the enrolment requirements for courses in the extended major, is given in the table that follows. If students are granted exemptions from specific compulsory courses or from approved elective courses, they may need to modify the recommended enrolment pattern.

Mathematics and Statistics (12-unit major)

Mathematics and Statistics Major Objectives

Graduates who have completed the major in Mathematics and Statistics will be able to:

- understand fundamentals of mathematical analysis at the undergraduate level
- show a sound knowledge of important theories and techniques of applied mathematics, statistics and computing
- apply their knowledge to solve practical problems that they are likely to encounter in science, industry, business or government instrumentalities
- continue to develop their abilities through research, discussion and private study
- use computer packages to solve problems in statistics, mathematics and modelling
- satisfy the minimum requirements for graduate membership of relevant professional bodies.

Mathematics and Statistics Major Courses

This is a 12-unit major. Along with the Foundation Studies courses prescribed above, students must take the following 8 units of core major courses and choose four courses from the approved major courses.

Courses	Semester(s) Offered	Mode
Mathematics and Statistics core major courses		
MAT1102 Algebra and Calculus I	1	ONC, ONL
STA2301 Distribution Theory[#]	1	ONC, ONL
MAT2100 Algebra and Calculus II	2	ONC, ONL
STA2302 Statistical Inference	2	ONL
MAT2200 Operations Research 1	2	ONC, ONL
MAT2409 High Performance Numerical Computing	1	ONC, ONL
STA3300 Experimental Design[#]	1	ONC, ONL
STA3301 Statistical Models[#]	2	ONC, ONL
Approved courses: Choose four of the following five courses:		
MAT3201 Operations Research 2[*]	1	ONC, ONL
MAT3103 Mathematical Modelling and Dynamical Systems^{**}	2	ONC, ONL
MAT3104 Mathematical Modelling in Financial Economics[*]	2	ONC, ONL
MAT3105 Harmony of Partial Differential Equations^{**}	1	ONC, ONL
STA3200 Multivariate Statistical Methods	1	ONL

Footnotes

[#] Unavailable in on-campus mode in 2022

^{*} The on-campus offering of this course is offered in odd years only.

^{**} The on-campus offering of this course is offered in even years only.

To complete the award, students taking a 12-unit major must undertake one of the following:

- one 8 unit second major
- 8 units of general electives.

Note: Students who are enrolled in the 12-unit Mathematics and Statistics major cannot also enrol in either the 8-unit Mathematics major or the 8-unit Statistics major.

Second Major

Second majors can be chosen from any of the eight-unit majors defined below for the Bachelor of Science (except Mathematics or Statistics) or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

Minor studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from any other Level 1, 2 or 3 courses in the University. It is strongly recommended that students complete as an elective the course not completed in the 'choose four from five courses' as listed above. Students must not take more than ten level 1 courses in the program overall.

Unsuitable electives

Students will require the approval of the Faculty of Health, Engineering and Sciences if they wish to include [MAT1000 Mathematics Fundamentals](#), [MAT1100 Foundation Mathematics](#), [ENM1500 Introductory Engineering Mathematics](#), [MAC1901](#) and [CSC1402](#) as electives towards the Bachelor of Science program majoring in Mathematics and Statistics.

Information Technology (12-unit major)

Information Technology Major Objectives

Graduates who have completed the major in Information Technology will be able to:

- work as a professional in the Information Technology industry
- show a sound understanding of several key areas of computing
- have a broad knowledge in computing
- have basic skills in software development and computer systems
- show sound presentation and communication skills required in the computing industry
- satisfy academic admission requirements for membership of relevant professional bodies.

Information Technology Major Courses

The Bachelor of Science (Information Technology) consists of 24-units comprised of:

- 4 foundation courses;
- 12 information technology courses listed below;
- 8 units comprised of either:
 - a second major, excluding the Computing major; or
 - 4 units of electives and one 4 unit minor; or
 - 8 units of electives.

Courses	Semester(s) Offered	Mode
ELE1301 Computer Engineering	1	ONC, ONL
CSC2401 Algorithms and Data Structures	2	ONC, ONL
CIS1000 Information Systems Concepts	1, 2, 3	ONC, ONL
CSC2402 Object-Oriented Programming in C++	1	ONC, ONL
CSC2408 Software Development Tools	1, 2	ONC, ONL
CSC3412 System and Security Administration	1	ONC, ONL
CSC2406 Web Technology 1	2	ONC, ONL
CSC3426 Web Technology 2*	2	ONC, ONL
CIS2000 Systems Analysis and Design[#]	1,3	ONC, ONL
OR	2	
CSC2407 Introduction to Software Engineering[#]		

CIS3002 Agile Methods	1	ONC, ONL
CSC3600 ICT Professional Project	1,2	ONC, ONL
One (1) of the following courses :		
CSC3420 Mobile Internet Technology	1	ONC, ONL
CSC2404 Operating Systems	2	ONC, ONL
CSC2407 Introduction to Software Engineering	2	ONC, ONL
CSC3400 Database Systems	1	ONC, ONL
CSC3403 Comparative Programming Languages	1	ONC, ONL
CSC3407 Network Fundamentals and Routing	1	ONC, ONL
CSC3413 Network Design and Analysis	2	ONC, ONL
CSC3427 Switching, Wireless and WAN Technologies	2	ONC, ONL

Footnotes

* Students will need to complete [CSC2406](#) prior to enrolling in [CSC3426](#).

Students select from either [CIS2000 Systems Analysis and Design](#) or [CSC2407 Introduction to Software Engineering](#), students are not required to complete both courses.

Second Major

Second majors can be chosen from any of the eight-unit majors defined below for the Bachelor of Science (except Computing) or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. Students must not take more than ten level 1 courses in the program overall.

Unsuitable Electives

For various reasons, the following courses will not be approved as electives for students majoring in Information Technology in the Bachelor of Science program:

CSC1402 and [CIS2000](#).

Astronomical and Space Sciences (12-unit major)

Astronomical and Space Sciences Major Courses

This is a 12-unit major. Along with the Foundation Studies courses prescribed above, students must take the following 12 units of courses:

Courses	Semester(s) Offered	Mode
PHY1101 Astronomy 1	1	ONC, ONL
PHY1104 Physics 1	1	ONC, ONL
PHY1107 Astronomy 2	2	ONC, ONL
PHY1911 Physics 2	2	ONC, ONL
PHY2204 Astronomical Techniques	1	ONL
PHY2207 Optics	2	ONL
PHY2208 Planetary and Exoplanetary Science	2	ONL
PHY3303 Modern Physics	1	EXT*
PHY3304 Photonics	2	EXT*
PHY3305 Quantum Mechanics	1	ONL

PHY3306 Solar and Stellar Astronomy	1	ONL
PHY3307 Galactic and Extragalactic Astronomy	2	ONL

Footnotes

* This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).

Notes:

The foundation courses [PHY1104 Physics 1](#) and [PHY1911 Physics 2](#) have the following co-requisites:

- [MAT1102 Algebra and Calculus I](#)
- [MAT2100 Algebra and Calculus II](#)

For students considering post-graduate study in physics or astronomy, the following courses are strongly recommended:

- [MAT2409 High Performance Numerical Computing](#)
- [SCI3301 Science Project](#)
- [MAT3103 Mathematical Modelling and Dynamical Systems](#)
- [MAT3105 Harmony of Partial Differential Equations](#)

Second Major

Students may choose to undertake an approved second major in Mathematics or Statistics.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. Students must not take more than ten level 1 courses in the program overall.

Psychology (12-unit major)

Psychology Major Objectives

Graduates who have completed the major in Psychology will be able to:

- demonstrate a sound understanding of the scope and focus of the major fields in contemporary Psychology
- gain employment in the public and private sectors as behavioural science graduates or as graduates with a broad range of skills
- satisfy the minimum requirements for affiliate membership of relevant professional bodies, most notably the Australian Psychological Society
- conduct research and report the findings to lay persons and the scientific community at large.

Psychology Major Courses

This is a 12-unit major. Along with the Foundation Studies courses prescribed above, students must take the following 12 units of courses:

Courses	Semester(s) Offered	Mode
PSY1010 Foundation Psychology A	1, 3	ONC, ONL
PSY1020 Foundation Psychology B	1, 2	ONC, ONL
PSY2010 Social Processes of Behaviour	1	ONC, ONL
PSY2020 Motivation and Emotion	1	ONC, ONL
PSY2030 Developmental Psychology	2	ONC, ONL
PSY2040 Human Information Processing	2	ONC, ONL
PSY2100 Research Methods in Psychology A	1	ONC, ONL

PSY3010 Assessment of Behaviour	1	ONC, ONL
PSY3030 Abnormal Psychology	1	ONC, ONL
PSY3050 Counselling Psychology	2	ONC, ONL
PSY3060 Learning and Behaviour Change	1	ONC, ONL
PSY3111 Research Methods in Psychology B	2	ONC, ONL

To complete the award, students taking a 12-unit major must undertake one of the following:

- one further 8 unit second major
- 4 units of general elective courses and one 4 unit minor study, or
- 8 units of general electives.

Second Major

Second majors can be chosen from any of the other eight-unit majors defined for the [Bachelor of Science](#), (Biology or Human Physiology) or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

The double major Psychology and Human Physiology, will provide an appreciation of the connections between psychological and physiological aspects of human health and is highly recommended by the Faculty of Health, Engineering and Sciences.

The double major Psychology and Counselling, will provide an opportunity to develop skills in counselling in addition to completing the accredited sequence of psychology courses, which may enhance future career and employability prospects and is highly recommended by the Faculty of Health, Engineering and Sciences.

Other majors in the University which have been taken as a second major with psychology include

- Human Resource Management within the [Bachelor of Business](#)
- Management and Leadership within the [Bachelor of Business](#)
- Business Administration within the [Bachelor of Business](#)
- Anthropology within the [Bachelor of Arts](#)
- History within the [Bachelor of Arts](#)
- English Literature within the [Bachelor of Arts](#)

Students intending to take a second major should begin enrolment in these courses in the first year of full-time enrolment, or the second year of part-time enrolment.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives can be selected from the table of psychology approved courses below or from any courses at Levels 1, 2 and 3 offered by USQ subject to satisfaction of pre-requisite requirements, timetabling constraints, quotas and program requirements. Please note that Diploma of Science Foundation core courses are not permitted as electives. Students must not take more than ten level 1 courses in the program overall.

Unsuitable Electives

For various reasons, the following courses will not be approved as electives for students majoring in Psychology in the Bachelor of Science program:

[DIP1002 Strategies for Successful Study](#), [DIP1003 Essential Mathematics](#) and [DIP1004 Mathematical Literacy](#).

Psychology Approved Courses

Courses	Semester(s) Offered	Mode
PSY3110 Clinical Health Psychology	2	ONL
PSY3250 Sport and Exercise Psychology	2	ONL

PSY3730 Industrial and Organisational Psychology [#]	1	ONL
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Footnotes

[#] This course will not be offered in 2022

Note: The psychology approved courses offered changes from year to year. For information about what psychology approved courses are being offered in any particular year students are directed to the course specification site for that particular year. Students are responsible for ensuring that they do not enrol in, or continue to be enrolled in, courses for which they have not satisfied the enrolment requirements (e.g., the necessary pre-requisites).

The recommended enrolment patterns for students with no exemptions, and the enrolment requirements for courses in the major, is given in the table that follows. If students are granted exemptions from specific compulsory courses or from approved courses, they may need to modify the recommended enrolment pattern.

Eight-unit majors

Eight-unit major objectives

The eight-unit majors are designed to:

- allow students to receive a broad-based education
- allow students to study at least one discipline area to Third Level
- prepare students for teaching in appropriate areas to Grade 12 level in Secondary Schools, subject to further study
- cater for students who aspire to professional studies that require a general first degree for admission
- form a basis for study at postgraduate diploma level, honours level or higher.

Animal Science (8-unit major)

Animal Science Major Courses

Courses [#]	Semester(s) Offered	Mode
AGR1101 Animal Health, Welfare and Behaviour	1	ONC, EXT [*]
AGR2201 Animal Production Systems	1	ONC, EXT [*]
AGR3202 Animal Reproduction [@]	1	ONC, EXT [*]
AGR2203 Animal Nutrition	2	ONC, EXT [*]
AGR2301 Agricultural Science	2	ONC, ONL
AGR3302 Sensors and Technology in Animal Production [@]	2	ONC, ONL
BIO2103 Biology 2	2	ONC, EXT [*]
BIO2219 Genetics	2	ONC, ONL

Footnotes

[#] At least four (4) courses in the program will be at Level 3 and no more than 10 courses in the program will be at Level 1.

^{*} This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).

[@] This course will be offered in 2022.

Biology (8-unit major)

Biology Major Courses

Courses [#]	Semester(s) Offered	Mode
BIO1101 Biology 1	1	ONC, EXT [*]
BIO2103 Biology 2	2	ONC, EXT [*]

Six (6) of the following courses, with at least two being Level 3 courses (provided prerequisites have been met):		
BIO1104 Medical Microbiology and Immunology 1	2	ONC, EXT [^]
REN2200 Ecology for Sustainability	1	ONC, ONL
CHE1110 Chemistry 1	1	ONC, EXT [*]
BIO2219 Genetics	2	ONC, ONL
CHE2120 Chemistry 2	2	ONC, EXT [*]
BIO2107 Cell and Molecular Biology 1	1	ONC, EXT [*]
REN1201 Environmental Studies[*]	1	ONC, ONL
BIO2202 Plant Physiology	2	ONC, EXT [*]
BIO3318 Plant Microbe Interactions	2	ONC, EXT [*]
BIO3207 Cell and Molecular Biology 2	2	ONC, EXT [*]
REN3301 Biodiversity and Conservation	2	ONC, ONL

Footnotes

- # At least four (4) courses in the program will be at Level 3 and no more than 10 courses in the program will be at Level 1.
* This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).
^ Mandatory residential school

To complete the award, students taking an eight-unit major must undertake either:

- one further 8 unit second major and 4 units of general elective courses or
- a further 12 units of approved courses negotiated with the Faculty of Health, Engineering and Sciences.

Second Major

Second majors can be chosen from any of the other eight-unit majors defined for the Bachelor of Science or, with the approval of the Program Director, from other eight-unit majors from other undergraduate programs in the University.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. Students must not take more than ten level 1 courses in the program overall.

Computing (8-unit major)

Computing Major Courses

Courses	Semester(s) Offered	Mode
ELE1301 Computer Engineering	1	ONC, ONL
CSC2401 Algorithms and Data Structures	2	ONC, ONL
CSC2402 Object-Oriented Programming in C++	1	ONC, ONL
CSC2408 Software Development Tools	1, 2	ONC, ONL
CIS1000 Information Systems Concepts	1, 2, 3	ONC, ONL
Three of the following courses:		
CSC2406 Web Technology 1	2	ONC, ONL
CSC3400 Database Systems	1	ONC, ONL
CSC3403 Comparative Programming Languages	1	ONC, ONL
CSC3407 Network Fundamentals and Routing	1	ONC, ONL

CSC3412 System and Security Administration	1	ONC, ONL
CSC3413 Network Design and Analysis	2	ONC, ONL
CSC3426 Web Technology 2*	2	ONC, ONL
CSC3420 Mobile Internet Technology	1	ONC, ONL
CSC3427 Switching, Wireless and WAN Technologies	2	ONC, ONL

Footnotes

* Students will need to complete [CSC2406](#) as an elective prior to enrolling in this course.

To complete the award, students taking an eight-unit major must undertake either:

- one further 8 unit second major and 4 units of general elective courses or
- a further 12 units of approved courses negotiated with the Faculty of Health, Engineering and Sciences.

Second Major

Second majors can be chosen from any of the other eight-unit majors defined for the Bachelor of Science or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. Students must not take more than ten level 1 courses in the program overall.

Unsuitable Electives

For various reasons, the following courses will not be approved as electives for students majoring in Computing in the Bachelor of Science program:

CSC1402 and [CIS2000](#).

Counselling (8-unit major)

Graduates who have completed the major in Counselling will have an overview of counselling theories and practice and basic counselling skills. This major is not accredited externally with the PACFA however attendance at residential schools will contribute towards a proportion of the required number of hours to join a PACFA affiliate.

Counselling Major Courses

Compulsory Courses	Semester(s) Offered	Mode
CDS1001 Human Relations and Communications⁺	1	EXT
CDS1002 Counselling Skills*	2	EXT
CDS3002 Counselling Theory and Practice⁺	1	EXT
CDS3004 Counselling Theory and Practice 2[#]	1	EXT
Choose any four of the following courses		
CDS3001 Assessment and Report Writing in Counselling⁺	2	EXT

CDS3005 Counselling Theory and Practice 3⁺	2	EXT
PSY2050 Facilitation and Negotiation	2	ONC, ONL
EDU3325 Understanding Child Abuse and Neglect for Helping Professionals[^]	1,3	ONL
EDU3335 Managing Emotional and Behavioural Problems of Young People in the Helping Professions[^]	1,3	ONL
SCI3302 Industry Placement[~]	1, 2 & 3	ONC,EXT

Footnotes

- + Attendance at residential schools is recommended as residential school attendance will be recorded to enable the student to demonstrate that they meet a proportion of the required number of hours of face-to-face instruction/tuition for eligibility to join a PACFA affiliate upon graduation. Students not attending the residential school will not accrue any hours toward eligibility to join a PACFA affiliate upon graduation.
- * Attendance at residential schools is highly recommended as residential school attendance will be recorded to enable the student to demonstrate that they meet a proportion of the required number of hours of face-to-face instruction/tuition for eligibility to join a PACFA affiliate upon graduation. Students not attending the residential school will not accrue any hours toward eligibility to join a PACFA affiliate upon graduation.
- # Attendance at residential school is mandatory.
- [^] Students are required to enrol in EDU3325 and EDU3335 as early as possible in the required year of study as places are limited.
- [~] Numbers of enrolments are limited. Students must have an approved placement before being able to enrol. Students should request to enrol by [contacting USQ](#).

To complete the award, students taking an eight-unit major must undertake either:

- one further 8 unit second major and 4 units of general elective courses or
- a further 12 units of approved courses negotiated with the Program Director.

Second Major

Second majors can be chosen from any of the other eight-unit majors defined for the Bachelor of Science or, with the approval of the Program Director, from other eight-unit majors from other undergraduate programs in the University.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. Students must not take more than ten level 1 courses in the program overall.

Residential Schools

[CDS3004 Counselling Theory and Practice 2](#) - attendance at the [Residential School](#) for this course is mandatory.

[CDS1002 Counselling Skills](#) - attendance at the [Residential School](#) for this course is highly recommended.

[CDS1001 Human Relations and Communications](#), [CDS3001 Assessment and Report Writing in Counselling](#), [CDS3002 Counselling Theory and Practice](#) and [CDS3005 Counselling Theory and Practice 3](#) - attendance at the [Residential School](#) for these courses is recommended.

Attendance will be recorded to enable the student to demonstrate that they meet a proportion of the required number of hours of face-to-face instruction/tuition for eligibility to join a PACFA affiliate upon graduation.

Environment and Sustainability (8-unit major)

Environment and Sustainability Major Objectives

Graduates who have completed the major in Environment and Sustainability will be able to:

- demonstrate more than a basic competence in climatology, physics, statistics and mathematics, environmental science, ecology and conservation, natural resource management and sustainability
- demonstrate a detailed knowledge of major environmental issues, human impacts and key climate mechanisms and apply this knowledge towards more sustainable environmental and resource management
- have a sound comprehension of the social, political and environmental implications of human impacts and global environmental changes
- apply the principles of sustainability in a wide diversity of professional opportunities

Environment and Sustainability Major Courses

Courses	Semester(s) Offered	Mode
REN1201 Environmental Studies **	1	ONC, ONL
REN2200 Ecology for Sustainability	1	ONC, ONL
REN3301 Biodiversity and Conservation	2	ONC, ONL
REN3302 Sustainable Resource Use *	2	ONC, ONL
CLII110 Weather and Climate	1	ONC, ONL
CLI2201 Climate Change and Variability	2	ONL
CLI3301 Climate and Environment Risk Assessment	1	ONL
CLI3302 Adaptation to Climate Change	2	ONL

Footnotes

* Available on-campus at Springfield and Toowoomba campuses.

Second Major

Second majors can be chosen from any of the other eight-unit majors defined for the Bachelor of Science or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

There are a number of other courses, minors and majors with a focus on sustainability that students may wish to study.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. It is recommended that students choose [SCI3301 Science Project](#) as an elective. Students must not take more than ten level 1 courses in the program overall.

Food Science (8-unit major)

Food Science Courses

Courses	Semester(s) Offered	Mode
BIO1810 Introduction to Food Science	1	ONC, ONL
CHE2810 Food Chemistry	1	ONC, ONL
BIO2810 Nutrition and Health	2	ONC, ONL
CHE2820 Principles of Food Analysis	2	ONC, ONL
BIO3810 Food Processing	1	ONC, EXT*

BIO3811 Food Product Development	2	ONC, EXT [*]
BIO3820 Food Microbiology	1	ONC, EXT [*]
BIO3821 Food Quality Assurance	2	ONC, EXT [*]

Footnotes

* This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).

Human Physiology (8-unit major)

Human Physiology Major Courses

Choose 8 courses from the following, with at least two being Level 3 courses (provided prerequisites have been met).

Courses	Semester(s) Offered	Mode
BIO1104 Medical Microbiology and Immunology 1	2	ONC, EXT [^]
BIO1203 Human Anatomy and Physiology 1	1,3	ONC, EXT [*]
BIO1204 Introduction to Biomedical Sciences	1	ONC, EXT [*]
BIO1206 Human Anatomy and Physiology 2	2	ONC, EXT [*]
BIO2118 Systems Physiology and Pharmacology	1	ONC, EXT [*]
BIO2119 Biochemistry of Nutrition	2	ONC, ONL
BIO2218 Concepts in Endocrinology	2	ONC, EXT [*]
BIO3102 Human Pathophysiology	1	ONL
BIO3103 Applications in Human Tissue Engineering	1	EXT [#]
BIO3201 Extreme Physiology and Pharmacology	2	ONL

Footnotes

[^] Mandatory residential school

* This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment)

Students wishing to take this course should seek advice from the discipline coordinator. This offering requires attendance at a mandatory residential school (a mandatory residential school is compulsory and has an associated pass/fail assessment linked to the residential school attendance).

Second Major

Second majors can be chosen from any of the other eight-unit majors defined for the Bachelor of Science or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook. Students must not take more than ten level 1 courses in the program overall.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University.

Mathematics (8-unit major)

Mathematics Major Courses

Courses	Semester(s) Offered	Mode
MAT1102 Algebra and Calculus I	1	ONC, ONL
MAT2409 High Performance Numerical Computing	1	ONC, ONL
MAT2200 Operations Research 1	2	ONC, ONL

MAT2100 Algebra and Calculus II	2	ONC, ONL
MAT3103 Mathematical Modelling and Dynamical Systems *	2	ONC, ONL
MAT3104 Mathematical Modelling in Financial Economics **	2	ONC, ONL
MAT3105 Harmony of Partial Differential Equations *	1	ONC, ONL
MAT3201 Operations Research 2 **	1	ONC, ONL

Footnotes

* The on-campus offering of this course is offered in even years only.

** The on-campus offering of this course is offered in odd years only.

To complete the award, students taking an eight-unit major must undertake either:

- one further 8 unit second major and 4 units of general elective courses or
- a further 12 units of approved courses negotiated with the Faculty of Health, Engineering and Sciences.

Note: If enrolled in this 8-unit Mathematics major, students cannot also enrol in the 8-unit Statistics major or the 12-unit Mathematics and Statistics major. If students wish to complete a combination of mathematics and statistics courses, they should enrol in the 12-unit Mathematics and Statistics major only.

Second major

Second majors can be chosen from any of the other eight-unit majors defined for the Bachelor of Science (except Mathematics and Statistics, or Statistics) or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

Minor studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. Students must not take more than ten level 1 courses in the program overall.

Unsuitable electives

Students will require approval from the Faculty of Health, Engineering and Sciences if they wish to include [MAT1000 Mathematics Fundamentals](#), [MAT1100 Foundation Mathematics](#), [ENM1500 Introductory Engineering Mathematics](#), [MAC1901](#) and [CSC1402](#) as electives towards the Bachelor of Science program majoring in Mathematics.

Physical Sciences (8-unit major)

Physical Sciences Major Courses

Courses	Semester(s) Offered	Mode
PHY1104 Physics 1	1	ONC, ONL
PHY1911 Physics 2	2	ONC, ONL
PHY2204 Astronomical Techniques	1	ONL
PHY2206 Medical Physics	2	ONL
PHY2207 Optics	2	ONL
PHY3303 Modern Physics	1	EXT*
PHY3304 Photonics [^]	2	EXT*
PHY3305 Quantum Mechanics	1	ONL

Footnotes

- * This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).
- ^ Students who have completed PHYS313 through UNE are unable to enrol in PHY3304.

Notes:

The foundation courses [PHY1104 Physics 1](#) and [PHY1911 Physics 2](#) have the following co-requisites:

- [MAT1102 Algebra and Calculus I](#)
- [MAT2100 Algebra and Calculus II](#)

Second Major

The twelve-unit Mathematics and Statistics major can be undertaken as a second major or a second major can be chosen from any of the other eight-unit majors defined for the Bachelor of Science or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. Students must not take more than ten level 1 courses in the program overall.

Plant Agricultural Science (8-unit major)

Plant Agricultural Science Major Courses

Courses	Semester(s) Offered	Mode
BIO1101 Biology 1	1	ONC, EXT*
AGR2301 Agricultural Science	2	ONC, ONL
BIO2202 Plant Physiology	2	ONC, EXT*
AGR2304 Plant Breeding	2	ONC, EXT*
AGR2303 Agronomy	1	ONC, ONL
AGR3304 Soil Science	1	ONC, ONL
AGR3305 Precision and Smart Technologies in Agriculture	2	ONC, ONL
BIO3318 Plant Microbe Interactions	2	ONC, EXT*

Footnotes

- * This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).

Statistics (8-unit major)

Statistics Major Courses

Courses	Semester(s) Offered	Mode
MAT1102 Algebra and Calculus I	1	ONC, ONL
MAT2100 Algebra and Calculus II	2	ONC, ONL
MAT2409 High Performance Numerical Computing	1	ONC, ONL
STA2301 Distribution Theory[#]	1	ONC, ONL
STA2302 Statistical Inference	2	ONL
STA3200 Multivariate Statistical Methods	1	ONL
STA3300 Experimental Design[#]	1	ONC, ONL

STA3301 Statistical Models [#]	2	ONC, ONL
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Footnotes

Unavailable in on-campus mode in 2022

To complete the award, students taking an eight-unit major must undertake either:

- one further 8 unit second major and 4 units of general elective courses or
- a further 12 units of approved courses negotiated with the Faculty of Health, Engineering and Sciences.

Note: If enrolled in this 8-unit Statistics major, students cannot also enrol in the 8-unit Mathematics major or the 12-unit Mathematics and Statistics major. If students wish to complete a combination of mathematics and statistics courses, they should enrol in the 12-unit Mathematics and Statistics major only.

Second major

Second majors can be chosen from any of the other eight-unit majors defined for the Bachelor of Science (except Mathematics and Statistics, or Mathematics) or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

Minor studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. Students must not take more than ten level 1 courses in the program overall.

Unsuitable electives

Students will require approval from the Faculty of Health, Engineering and Sciences if they wish to include [MAT1000 Mathematics Fundamentals](#), [MAT1100 Foundation Mathematics](#), [ENM1500 Introductory Engineering Mathematics](#), MAC1901 and CSC1402 as electives towards the Bachelor of Science program majoring in Statistics.

Wildlife Management (8-unit major)

Wildlife Management Major Objectives

Graduates who have completed the major in Wildlife Management will be able to:

- demonstrate more than a basic competence of the different types of wildlife and their management, and how and why wildlife needs to be conserved, utilized or controlled
- demonstrate a detailed knowledge of native and introduced wildlife species management and be able to apply this management knowing the strengths and weaknesses of different management techniques
- have a sound comprehension that wildlife can be iconic, important (ecologically, socially, economically), abundant, vulnerable to extinction and have an important role in animal biosecurity
- apply the principles of wildlife management to manage wildlife in captivity, to mitigate human-wildlife conflict, to measure and monitor wildlife populations for different purposes

Wildlife Management Major Courses

Courses	Semester(s) Offered	Mode
WLF2101 Management of Wildlife	1	ONC, EXT*
WLF1201 Field Skills for Wildlife, Game and Pest Management	2	EXT ⁺
REN3301 Biodiversity and Conservation	2	ONC, ONL
WLF2201 Vertebrate Pests and Biosecurity	2	ONC, EXT*

WLF3101 Principles of Wildlife Management & Sustainable Use	1	ONL [^]
SCI3301 Science Project	1,2	ONL
WLF3201 Captive Wildlife Management	2	ONC, EXT ^{*^}
SCI3302 Industry Placement	1,2,3	ONC, EXT

Footnotes

- * This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment)
- + This course has a mandatory residential school
- ^ This course will be introduced in 2024

Second Major

Second majors can be chosen from any of the other eight-unit majors defined for the Bachelor of Science or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

There are a number of other courses, minors and majors with a focus on wildlife ecology that students may wish to study.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. Students must not take more than ten level 1 courses in the program overall.

Wine Science (8-unit major)

Wine Science Major Courses

Courses	Semester(s) Offered	Mode
WIN1101 Grape and Wine Production	1	ONL
WIN2200 Viticultural and Winemaking Practice	1	EXT ^{**}
WIN2215 Wine Biochemistry and Microbiology	2	ONL
WIN2210 Viticultural Principles and Production	2	ONL
WIN2220 Wine Production	2	ONL
WIN3310 Wine Sensory Analysis	2	EXT ^{**}
WIN3304 Viticultural and Winemaking Practice 2	3	EXT ^{**}
SCI3302 Industry Placement	1, 2, 3	ONC, EXT

Footnotes

- ** This offering requires attendance at a mandatory residential school.

Second Major

Second majors can be chosen from any of the other eight-unit majors defined for the Bachelor of Science or, with the approval of the Faculty of Health, Engineering and Sciences, from other eight-unit majors from other undergraduate programs in the University.

Minor Studies

Minor studies are a set of courses as defined in the [Minor Studies](#) section of the Handbook.

Electives

General electives are courses chosen from other Level 1, 2 or 3 courses in the University. Students must not take more than ten level 1 courses in the program overall.

IT requirements

Students should visit the USQ [minimum computing standards](#) to check that their computers are capable of running the appropriate software and versions of Internet web browsers and to check the minimum and recommended standards for software.

Residential schools

The attendance requirement of residential schools within this degree is indicated by the following letters: R = Recommended; HR = Highly Recommended; M = Mandatory. To find out more about [residential schools](#), visit the [Residential School Schedule](#) to view specific dates for your degree, or visit the [Policy and Procedure Library](#).

Highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).

Animal Science

- [AGR1101 Animal Health, Welfare and Behaviour](#)
- [AGR2201 Animal Production Systems](#)
- [AGR3202 Animal Reproduction](#)
- [AGR2203 Animal Nutrition](#)
- [BIO2103 Biology 2](#)

Biology

Core major courses:

- [BIO1101 Biology 1](#)
- [BIO2103 Biology 2](#)
- [BIO2107 Cell and Molecular Biology 1](#)
- [BIO3207 Cell and Molecular Biology 2](#)

Core major approved courses:

- [BIO2202 Plant Physiology](#)
- [BIO1104 Medical Microbiology and Immunology 1](#)
- [CHE1110 Chemistry 1](#)
- [CHE2120 Chemistry 2](#)
- [BIO3318 Plant Microbe Interactions](#)

Counselling

- [CDS1002 Counselling Skills](#)
- [CDS1001 Human Relations and Communications](#)
- [CDS3001 Assessment and Report Writing in Counselling](#)
- [CDS3002 Counselling Theory and Practice](#)
- [CDS3004 Counselling Theory and Practice 2](#)
- [CDS3005 Counselling Theory and Practice 3](#)

Food Science

- [BIO3810 Food Processing](#)

- [BIO3811 Food Product Development](#)
- [BIO3820 Food Microbiology](#)
- [BIO3821 Food Quality Assurance](#)

Human Physiology

- [BIO1104 Medical Microbiology and Immunology 1](#)
- [BIO1203 Human Anatomy and Physiology 1](#)
- [BIO1204 Introduction to Biomedical Sciences](#)
- [BIO1206 Human Anatomy and Physiology 2](#)
- [BIO2118 Systems Physiology and Pharmacology](#)
- [BIO2218 Concepts in Endocrinology](#)
- [BIO3103 Applications in Human Tissue Engineering](#)

Physical Sciences and Astronomical and Space Sciences

- [PHY3303 Modern Physics](#)
- [PHY3304 Photonics](#)

Plant Agricultural Science

- [AGR2304 Plant Breeding](#)
- [BIO1101 Biology 1](#)
- [BIO2202 Plant Physiology](#)
- [BIO3318 Plant Microbe Interactions](#)

Wildlife Management

- [WLF1201 Field Skills for Wildlife, Game and Pest Management](#)
- [WLF2101 Management of Wildlife](#)
- [WLF2201 Vertebrate Pests and Biosecurity](#)
- [WLF3201 Captive Wildlife Management](#)

Wine Science

- [WIN2200 Viticultural and Winemaking Practice](#)
- [WIN3304 Viticultural and Winemaking Practice 2](#)
- [WIN3310 Wine Sensory Analysis](#)

Related programs

Requirements for entry to Master of Learning and Teaching

Students intending to become secondary school teachers are advised that they may need to complete a postgraduate teacher entry qualification (such as the two-year [MOLT Master of Learning and Teaching](#)) after completion of their undergraduate program. For further information, students should refer to the Education section of this Handbook or address enquiries to the Faculty of Business, Education, Law and Arts.

Exit points

Students who, for whatever reason, are unable to complete the Bachelor of Science and who satisfy all of the requirements may exit with a [DPSC Diploma of Science](#).

Credit

Exemptions/credit will be assessed based on the [USQ Credit and Exemption Procedure](#).

For PSY course exemptions – Psychology courses taken at another university or institution will only be considered for psychology exemptions if the courses were part of an APAC (Australian Psychology

Accreditation Council) accredited sequence. APAC regulations clearly state that only courses taken within an APAC sequence can be used for exemptions from any PSY courses.

Transferring students - students who transfer into the BSCI from another USQ program, such as the [BHMS Bachelor of Human Services](#) (Counselling), will have all relevant courses transferred as per USQ policy. Completed courses will be transferred and treated as non-psychology general electives as per to APAC regulations. For example, EDC1100 will be treated as a non-psychology general elective as it is not equivalent to [PSY2030 Developmental Psychology](#) and does not form part of an APAC accredited sequence.

Recommended Enrolment Pattern - Psychology Extended

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
Year 1							
SCI1001 Succeeding in Science	1	1			2	1	
CMS1000 Communication and Scholarship	1	1			1	1,2,3	Enrolment is not permitted in CMS1000 if MGT1200 has been previously completed.
PSY1010 Foundation Psychology A	1	1			1	1,3	
General Elective	1	1			2	1	
PSY1030 Cross-Cultural and Indigenous Psychology	1	2			1	2,3	
PSY1020 Foundation Psychology B	1	2			1	1, 2	
STA1003 Fundamental Statistics	1	2			3	1,2,3	Enrolment is not permitted in STA1003 if S TA2300 or STA8170 has been previously completed.
General Elective	1	2			2	2	
Year 2							
PSY2010 Social Processes of Behaviour	2	1			3	1	Pre-requisite: PSY1010
PSY2020 Motivation and Emotion	2	1			3	1	Pre-requisite: PSY1010
PSY2100 Research Methods in Psychology A	2	1			4	1	Pre-requisite: PSY1010 and (STA2300 or STA1003). For students enrolled in Program BSSC with a major in BES: PSY1010 and STA3100
General Elective	2	1			4	1	
PSY2030 Developmental Psychology	2	2			3	2	Pre-requisite: PSY1010
PSY2040 Human Information Processing	2	2			4	2	Pre-requisite: PSY1020 and (PSY2100 or STA2300 or STA1003)
PSY3111 Research Methods in Psychology B	2	2			4	2	Pre-requisite: PSY2100
General Elective	2	2			3	2	
Year 3							
PSY3010 Assessment of Behaviour	3	1			5	1	Pre-requisite: PSY2100
PSY3030 Abnormal Psychology	3	1			5	1	Pre-requisite: PSY1010
PSY4080 Psychology Complementary Studies A *	3	1	3	1			
PSY3060 Learning and Behaviour Change	3	1			5	1	Pre-requisite: PSY1020
PSY3050 Counselling Psychology	3	2			5	2	Pre-requisite: PSY1010
PSY4090 Psychology Complementary Studies B *	3	2	3	2			
Psychology Elective (from list)	3	2			5	2	
Psychology Elective (from list)	3	2			5	2	

Footnotes

* The on-campus offering will not be available in 2022

Recommended Enrolment Pattern - Information Technology

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
Year 1							
CSC1401 Foundation Programming	1	1, 2			1	1, 2	
ELE1301 Computer Engineering	1	1			1	1	
CIS1000 Information Systems Concepts	1	1			1	1	
MAT1101 Discrete Mathematics for Computing	1	1			1	1	
CMS1000 Communication and Scholarship	1	2			1	2	Enrolment is not permitted in CMS1000 if MGT1200 has been previously completed.
STA1003 Fundamental Statistics	1	2			1	2	Enrolment is not permitted in STA1003 if S TA2300 or STA8170 has been previously completed.
CSC2408 Software Development Tools	1	2			1	2	Pre-requisite: CSC1401
CSC2406 Web Technology 1	1	2			1	2	Pre-requisite: CSC1401 or Students must be enrolled in one of the following Programs: UCCC or GDTI or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN or B SED
Year 2							
CSC2402 Object-Oriented Programming in C++	2	1			2	1	Pre-requisite: CSC1401 or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
Choose one of the following two (2) courses:							
CIS2000 Systems Analysis and Design [#]	2	1			2	1	Pre-requisite: CMS1000 or Students must be enrolled in the following Program: UCCC
OR							
CSC2407 Introduction to Software Engineering [#]							Pre-requisite: CSC1401 or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
First general elective or course from the second major	2	1			2	1	
Second general elective or course from the second major	2	1			2	1	
CSC2401 Algorithms and Data Structures	2	2			2	2	Pre-requisite: CSC2402 or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT
Third general elective or course from the second major	2	2			2	2	
One specified course from the major list	2	2			2	2	
Fourth general elective or course from the second major	2	2			2	2	
Year 3							
CIS3002 Agile Methods	3	1			3	1,	Pre-requisite: CIS2000 or CSC2407
CSC3412 System and Security Administration	3	1			3	1,	Pre-requisite: CSC2408

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
Fifth general elective or course from the second major	3	1			3	1	
Sixth general elective or course from the second major	3	1			3	1	
CSC3426 Web Technology 2	3	2			3	2	Pre-requisite: CSC2406
CSC3600 ICT Professional Project	3	2			3	1,2	Pre-requisite: Students must have satisfactorily completed CIS3002 Business Analysis and at least 16 courses including seven BITC core courses other than this course.
Seventh general elective or course from the second major	3	2			3	2	
Eighth general elective or course from the second major	3	2			3	2	

Footnotes

Students are not required to complete both [CIS2000 Systems Analysis and Design](#) and [CSC2407 Introduction to Software Engineering](#). [CSC2407 Introduction to Software Engineering](#) is only offered in Semester 2. If a student chooses to complete [CSC2407 Introduction to Software Engineering](#) in Semester 2 then the student will need to complete the fourth general elective or course from the second major in Semester 1.

Recommended Enrolment Pattern - 12 unit major - Astronomical and Space Sciences

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
PHY1104 Physics 1	1	1			1	1		Co-requisite: (MAT1102 or ENM2600) or Students must be enrolled in one of the following Programs: MSCN or GDSI or GCSC
PHY1101 Astronomy 1	1	1			1	1		
MAT1102 Algebra and Calculus I	1	1			1	1		
SCI1001 Succeeding in Science	1	1			1	1		
CMS1100 Communicating in the Sciences					1	1,2		
MAT2100 Algebra and Calculus II	1	2			1	2		Pre-requisite: MAT1102 or MAT1502 or ENM1600 or Students must be enrolled in the following program: MSCN or MEPR or BSED
PHY1911 Physics 2	1	2			1	2		Co-requisite: (MAT2100 or ENM1600) or Students must be enrolled in one of the following Programs: MSCN or GDSI or GCSC
PHY1107 Astronomy 2	1	2			1	2		
Year 2								
PHY3303 Modern Physics [#]			2	1			HR	Pre-requisite: PHY1104 and PHY1911
Course selected from 2nd major area or minor or general elective	2	1			2	1		
PHY2204 Astronomical Techniques					2	1		Pre-requisite: PHY1104 and PHY1911

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
STA1003 Fundamental Statistics	2	1,2,3			2	1,2,3		Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.
PHY2207 Optics					2	2		Pre-requisite: PHY1104 and PHY1911
PHY2208 Planetary and Exoplanetary Science					2	2		Pre-requisite: PHY1101
CSC1401 Foundation Programming	2	1,2,3			2	1,2,3		
Course selected from minor or general elective	2	1,2			2	1,2,3		
Year 3								
PHY3305 Quantum Mechanics					3	1		Pre-requisite or Co-requisite: PHY3303
PHY3306 Solar and Stellar Astronomy					3	1		Pre-requisite: PHY1104 and PHY1911
Course selected from 2nd major area or minor or general elective	3	1			3	1		
Course selected from 2nd major area or minor or general elective					3	1,2		
Course selected from 2nd major area or minor or general elective	3	2			3	2		
PHY3304 Photonics #			3	2			HR	Pre-requisite: PHY1104 and PHY1911
PHY3307 Galactic and Extragalactic Astronomy					3	2		Pre-requisite: PHY1104 and PHY1911
Course selected from 2nd major area or minor or general elective	3	2			3	2		

Footnotes

This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).

Recommended Enrolment Pattern - Mathematics and Statistics

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Note: Students are not able to enrol in the 8-unit Mathematics major or the 8-unit Statistics major as a second major when completing this 12-unit Mathematics and Statistics major.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
Year 1							
CMS1100 Communicating in the Sciences	1	1			1	1, 2	
SCI1001 Succeeding in Science	1	1			1	1	
MAT1102 Algebra and Calculus I	1	1			1	1	
STA1003 Fundamental Statistics	1	1,2			1	1,2,3	Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.
CSC1401 Foundation Programming	1	1,2,3			1	1,2,3	

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
MAT2200 Operations Research 1	1	2			1	2	Pre-requisite: MAT1102 or ENM1600 or equivalent or approval from the examiner. Enrolment is not permitted in MAT2200 if MAT1200 has been previously completed.
MAT2100 Algebra and Calculus II	1	2			1	2	Pre-requisite: MAT1102 or MAT1502 or ENM1600 or Students must be enrolled in the following program: MSCN or MEPR or BSED
General Elective (or second major)	1	2			1	2	
Year 2							
MAT2409 High Performance Numerical Computing	2	1			2	1	Pre-requisite: (CSC2410 or CSC1401) and (MAT1102 or ENM1600) or Students must be enrolled in one of the following Programs: MPIT or MCOT or MCTE
STA2301 Distribution Theory [#]	2	1			2	1	Pre-requisite: (STA2300 or STA1003 or equivalent) and (MAT1102 or ENM1600)
STA3300 Experimental Design [#]	2	1			2	1	Pre-requisite: STA2300 or STA1003 or equivalent or approval of examiner
General Elective (or second major)	2	1			2	1	
STA2302 Statistical Inference					2	2	Pre-requisite: STA2301
STA3301 Statistical Models [#]	2	2			2	2	Pre-requisite: STA3300 or approval of examiner or Students must have completed STA8170 and be enrolled in one of the following Programs: GCSC or GDSI or MSCN or MADS or MSCR or DPHD .
General Elective or second major	2	2			2	2	
General Elective or second major	2	2			2	2	
Year 3							
Approved Mathematics and Statistics major course	3	1,2			3	1,2	
Approved Mathematics and Statistics major course	3	1			3	1	
Approved Mathematics and Statistics major course or General Elective or second major course	3	1			3	1	
General Elective or second major	3	1			3	1	
General Elective or second major	3	2			3	2	
General Elective or second major	3	2			3	2	
Approved Mathematics and Statistics major course	3	2			3	2	
Approved Mathematics and Statistics major course or General Elective or second major course	3	2			3	2	
Approved Mathematics and Statistics major courses. Choose four of the following five courses:							
MAT3105 Harmony of Partial Differential Equations ⁺	3	1			3	1	Pre-requisite: ENM2600 or MAT2100 or MAT2500
MAT3201 Operations Research 2 [*]	3	1			3	1	Pre-requisite: MAT1200 or MAT2200 or Students must be enrolled in one of the following Programs: MSCN or GDSI
STA3200 Multivariate Statistical Methods					3	1	Pre-requisite: STA2300 or STA1003
MAT3103 Mathematical Modelling and Dynamical Systems ⁺	3	2			3	2	Pre-requisite: MAT2100 or MAT2500 or ENM2600
MAT3104 Mathematical Modelling in Financial Economics [*]	3	2			3	2	Pre-requisite: (STA2300 or STA1003 or equivalent) and (MAT2100 or MAT2500 or ENM2600)

Footnotes

Unavailable in on-campus mode in 2022

+ The on-campus offering of this course is offered in even-numbered years only.

* The on-campus offering of this course is offered in odd-numbered years only.

Recommended Enrolment Pattern - Psychology

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
Year 1							
SCI1001 Succeeding in Science	1	1			1	1	
CMS1000 Communication and Scholarship	1	1			1	1,2,3	Enrolment is not permitted in CMS1000 if MGT1200 has been previously completed.
PSY1010 Foundation Psychology A	1	1			1	1,3	
General Elective	1	1			2	1	
PSY1030 Cross-Cultural and Indigenous Psychology	1	2			1	2,3	
PSY1020 Foundation Psychology B	1	2			1	1, 2	
STA1003 Fundamental Statistics	1	2			3	1,2,3	Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.
General Elective	1	2			2	2	
Year 2							
PSY2010 Social Processes of Behaviour	2	1			3	1	Pre-requisite: PSY1010
PSY2020 Motivation and Emotion	2	1			3	1	Pre-requisite: PSY1010
PSY2100 Research Methods in Psychology A	2	1			4	1	Pre-requisite: PSY1010 and (STA2300 or STA1003). For students enrolled in Program BSSC with a major in BES: PSY1010 and STA3100
General Elective	2	1			4	1	
PSY2030 Developmental Psychology	2	2			3	2	Pre-requisite: PSY1010
PSY2040 Human Information Processing	2	2			4	2	Pre-requisite: PSY1020 and (PSY2100 or STA2300 or STA1003)
PSY3111 Research Methods in Psychology B	2	2			4	2	Pre-requisite: PSY2100
General Elective	2	2			3	2	
Year 3							
PSY3010 Assessment of Behaviour	3	1			5	1	Pre-requisite: PSY2100
PSY3030 Abnormal Psychology	3	1			5	1	Pre-requisite: PSY1010
PSY3060 Learning and Behaviour Change	3	1			6	1	Pre-requisite: PSY1020
General Elective	3	1			6	1	
PSY3050 Counselling Psychology	3	2			5	2	Pre-requisite: PSY1010
General Elective	3	2			6	2	
General Elective	3	2			6	2	
General Elective	3	2			6	2	

Recommended Enrolment Pattern - 8 unit majors - Animal Science, Biology, Computing, Environment and Sustainability, Human Physiology, Mathematics, Physical Sciences and Wine Science

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Students undertaking an eight-unit major as a first major should:

- study the beginning of this section that describes the program structure and requirements for the award of the Bachelor of Science. Notably four units in the program must be at level 3.
- select at least one major from the eight-unit majors listed in the previous pages. Select courses from that/those major(s) bearing in mind the requirements for the award and possible pre-requisite requirements. It is strongly suggested that students start with core courses and level 1 courses in their first year of study and progress to level 2 and level 3 courses in their second and third years of study respectively.
- select elective courses. Students should refer to the courses in the [Minor Studies](#) section of the Handbook to help with the selection of elective courses. Students may select their electives as a package as described in the [Minor Studies](#) section, or they may select any courses of interest providing they obtain approval from the Faculty of Health, Engineering and Sciences
- having arrived at an appropriate enrolment plan construct a table detailing the intended progression through the program.
- contact the Faculty of Health, Engineering and Sciences when they arrive at the University, or before they arrive to verify that their selection is appropriate.

There is sufficient flexibility in the Bachelor of Science requirements to allow individual students to design a program well suited to their needs. Students should contact the Faculty of Health, Engineering and Sciences to discuss their program structure as major combinations are timetable dependent.

Recommended Enrolment Pattern - 8 unit major - Animal Science

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
SCI1001 Succeeding in Science	1	1			1	1		
CMS1100 Communicating in the Sciences	1	1			1	1,2		
STA1003 Fundamental Statistics	1	1,2			1	1		Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.
AGR1101 Animal Health, Welfare and Behaviour *	1	1	1	1			HR	
BIO2103 Biology 2 ^{S*}	1	2	1	2			HR	
AGR2301 Agricultural Science	1	2			1	2		
MAT1100 Foundation Mathematics	1	2			1	2		
General Elective (Or Major 2)	1	2			1	2		
Year 2								
AGR2201 Animal Production Systems *	2	1	2	1			HR	
General Elective (Or Major 2)	2	1			2	1		
General Elective (Or Major 2)	2	1			2	1		
General Elective (Or Major 2)	2	1			2	1		
AGR2203 Animal Nutrition *	2	2	2	2			HR	Pre-requisite: BIO2103

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
BIO2219 Genetics	2	2			2	2		Pre-requisite: BIO1100 or BIO1101 or BIO1204 or AGR1101
General Elective (Or Major 2)	2	2			2	2		
General Elective (Or Major 2)	2	2			2	2		
Year 3								
General Elective (Or Major 2)	3	1			3	1		
AGR3202 Animal Reproduction @*	3	1	3	1			HR	Pre-requisite: AGR1101 and BIO2103
General Elective (Or Major 2)	3	1			3	1		
General Elective (Or Major 2)	3	1			3	1		
AGR3302 Sensors and Technology in Animal Production @	3	2			3	2		
General Elective (Or Major 2)	3	2			3	2		
General Elective (Or Major 2)	3	2			3	2		
General Elective (Or Major 2)	3	2			3	2		

Footnotes

* This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).

\$ If students are enrolled in the Biology Major as well as the Animal Science major, students are to take [AGR2303 Agronomy](#) in its place.

@ This course will be offered in 2022.

Recommended Enrolment Pattern - 8 unit major - Biology

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

To complete the award, students taking an eight-unit major must undertake either:

- one further 8 unit second major and 4 units of elective courses or
- a further 12 units of elective courses negotiated with the Faculty of Health, Engineering and Sciences.

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
BIO1101 Biology 1 *	1	1	1	1			HR	
SCI1001 Succeeding in Science	1	1			1	1		
CMS1100 Communicating in the Sciences	1	1			1	1,2		
STA1003 Fundamental Statistics	1	1,2			1	1,2,3		Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.
MAT1100 Foundation Mathematics	1	2			1	2		
BIO2103 Biology 2 *	1	2	1	2			HR	
Six (6) of the following courses, with at least two being Level 3 courses (provided prerequisites have been met):								
BIO1104 Medical Microbiology and Immunology 1 ^	1	2	1	2			M	

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
REN1201 Environmental Studies [#]	1	1			1	1		Enrolment is not permitted in REN1201 if REN8101 has been previously completed.
CHE1110 Chemistry 1 [*]	1	1	1	1			HR	
BIO2219 Genetics	2	2			2	2		Pre-requisite: BIO1100 or BIO1101 or BIO1204 or AGR1101
CHE2120 Chemistry 2 [*]	1	2	1	2			HR	Pre-requisite: CHE1110
BIO2107 Cell and Molecular Biology 1 [*]	2	1	2	1			HR	Pre-requisite: CHE2120
REN2200 Ecology for Sustainability	2	1			2	1		Enrolment is not permitted in REN2200 if REN8202 has been previously completed.
BIO2202 Plant Physiology [*]	2	2	2	2			HR	Pre-requisite: BIO1101
BIO3318 Plant Microbe Interactions [*]	3	2	3	2			HR	Pre-requisite: BIO1101 or S tudents must be enrolled in one of the following Program s: BATM or BENV or GCSC or GDSI or MSCN
BIO3207 Cell and Molecular Biology 2 [*]	3	2	3	2			HR	Pre-requisite: BIO2107
REN3301 Biodiversity and Conservation	3	2			3	2		

Footnotes

- * This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).
^ Mandatory residential school
Unavailable in on-campus mode at Springfield in 2022

Recommended Enrolment Pattern - 8 unit major - Computing

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
Year 1							
ELE1301 Computer Engineering	1	1			1	1	
MAT1101 Discrete Mathematics for Computing	1	1			1	1	
CSC1401 Foundation Programming	1	1,2			1	1, 2, 3	
CMS1000 Communication and Scholarship	1	1,2			1	1,2,3	Enrolment is not permitted in CMS1000 if MGT1200 has been previously completed.
CIS1000 Information Systems Concepts	1	1,2,3			1	1,2,3	
STA1003 Fundamental Statistics	1	1,2			1	1,2,3	Enrolment is not permitted in STA1003 if S TA2300 or STA8170 has been previously completed.
General Elective (or major 2)	1	2			1	2	
General Elective (or major 2)	1	2			1	2	

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
Year 2							
CSC2402 Object-Oriented Programming in C++	2	1			2	1	Pre-requisite: CSC1401 or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
CSC2408 Software Development Tools	2	1,2			2	1, 2	Pre-requisite: CSC1401
General Elective (or major 2)	2	1			2	1	
General Elective (or major 2)	2	1			2	1	
CSC2401 Algorithms and Data Structures	2	2			2	2	Pre-requisite: CSC2402 or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT
General Elective (or major 2)	2	2			2	2	
General Elective (or major 2)	2	2			2	2	
General Elective (or major 2)	2	2			2	2	
Year 3							
Choose 3 of the following courses							
CSC2406 Web Technology 1	2	2			2	2	Pre-requisite: CSC1401 or Students must be enrolled in one of the following Programs: UCCC or GDTI or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN or B SED
CSC3400 Database Systems	3	1			3	1	Pre-requisite: CSC1401 or CIS1000 Enrolment is not permitted in CSC3400 if CIS2002 has been previously completed.
CSC3403 Comparative Programming Languages	3	1			3	1	Pre-req: CSC2408 ; and Pre-req or Co-req: CSC2402 ; or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT Enrolment is not permitted in CSC3403 if CIS3001 has been previously completed
CSC3407 Network Fundamentals and Routing	3	1			3	1	Pre-requisite: CSC1401
CSC3412 System and Security Administration	3	1			3	1	Pre-requisite: CSC2408
CSC3413 Network Design and Analysis	3	2			3	2	Pre-requisite: CSC3412
CSC3426 Web Technology 2	3	2			3	2	Pre-requisite: CSC2406
CSC3420 Mobile Internet Technology	3	1			3	1	Pre-requisite: CSC3407 or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT
CSC3427 Switching, Wireless and WAN Technologies	3	2			3	2	Pre-requisite: CSC3407 or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT
General Elective (or major 2)	3	1,2			3	1,2	
General Elective (or major 2)	3	1,2			3	1,2	
General Elective (or major 2)	3	1,2			3	1,2	
General Elective (or major 2)	3	1,2			3	1,2	
General Elective (or major 2)	3	1,2			3	1,2	

Recommended Enrolment Pattern - 8 unit major - Counselling

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
CMS1000 Communication and Scholarship	1	1,2			1	1,2,3		Enrolment is not permitted in CMS1000 if MGT1200 has been previously completed.
CDS1001 Human Relations and Communications			1	1			R	
SCI1001 Succeeding in Science	1	1,2			1	1		
General Elective or second Major	1	1			1	1		
CDS1002 Counselling Skills *			1	2			HR	
PSY1030 Cross-Cultural and Indigenous Psychology	1	2			1	2,3		
STA1003 Fundamental Statistics	1	2			1	2,3		Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.
General Elective or second Major	1	2			1	2		
Year 2								
CDS3002 Counselling Theory and Practice			2	1			R	Pre-requisite: CDS1002 or (PSY1010 and PSY1020)
General Elective or second Major	2	1			2	1		
General Elective or second Major	2	1			2	1		
General Elective or second Major	2	1			2	1		
One of the following two courses:								
CDS3001 Assessment and Report Writing in Counselling			2	2			R	Pre-requisite: Students must have successfully completed 8 units prior to enrolling
PSY2050 Facilitation and Negotiation	2	2			2	2		Pre-requisite: PSY1102 for students enrolled in the BPSH and BPSB programs and CDS1001 or CDS1002 for students enrolled in the BSCI (Counselling) major. Students from other programs who wish to take this course will need permission from the examiner.
General Elective or second Major	2	2			2	2		
General Elective or second Major	2	2			2	2		
General Elective or second Major	2	2			2	2		
Year 3								
CDS3004 Counselling Theory and Practice 2			3	1			M	Pre-requisite: CDS1002 Pre-requisite or Co-requisite: CDS3002
EDU3325 Understanding Child Abuse and Neglect for Helping Professionals ^A					3	1,3		Enrolment is not permitted in EDU3325 if EDU5325 has been previously completed.

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
General Elective or second Major	3	1			3	1		
General Elective or second Major	3	1			3	1		
Choose two of the following three courses:								
CDS3005 Counselling Theory and Practice 3			3	2			R	Pre-requisite: CDS3004
EDU3335 Managing Emotional and Behavioural Problems of Young People in the Helping Professions ^					3	1,3		Enrolment is not permitted in EDU3335 if EDU5335 has been previously completed.
SCI3302 Industry Placement ~	3	3	3	1,2,3				Pre-requisite: Completion of 2nd year (or 2 years full time study in a relevant area)
General Elective or second Major	3	2			3	2		
General Elective or second Major	3	2			3	2		

Footnotes

- * This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).
- ^ Students are required to enrol in [EDU3325](#) and [EDU3335](#) as early as possible in the required year of study as places are limited.
- ~ Numbers of enrolments are limited. Students must have an approved placement before being able to enrol. Students should request to enrol by [contacting USQ](#).

Recommended Enrolment Pattern - 8 unit major - Environment and Sustainability

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
Year 1							
REN1201 Environmental Studies #	1	1			1	1	Enrolment is not permitted in REN1201 if REN8101 has been previously completed.
CLI1110 Weather and Climate	1	1			1	1	
SCI1001 Succeeding in Science	1	1			1	1	
CMS1100 Communicating in the Sciences *	1	1			1	1,2	
General Elective (or major 2)	1	2			1	2	
STA1003 Fundamental Statistics	1	2			1	2,3	Enrolment is not permitted in STA1003 if S TA2300 or STA8170 has been previously completed.
MAT1100 Foundation Mathematics	1	2			1	2	
General Elective (Or Major 2)	1	2			2	2	
Year 2							
REN2200 Ecology for Sustainability	2	1			2	1	Enrolment is not permitted in REN2200 if REN8202 has been previously completed.
General Elective (or major 2)	2	1			2	1	
General Elective (or major 2)	2	1			2	1	
General Elective (or major 2)	2	1			2	1	
REN3302 Sustainable Resource Use	2	2			2	2	
CLI2201 Climate Change and Variability					2	2	
General Elective (or major 2)	2	2			2	2	

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
General Elective (or major 2)	2	2			2	2	
Year 3							
CLI3301 Climate and Environment Risk Assessment					3	1	
General Elective (or major 2)	3	1			3	1	
General Elective (or major 2)	3	1			3	1	
General Elective (or major 2)	3	1			3	1	
CLI3302 Adaptation to Climate Change					3	2	
REN3301 Biodiversity and Conservation	3	2			3	2	
General Elective (or major 2)	3	2			3	2	
General Elective (or major 2)	3	2			3	2	

Footnotes

Unavailable in on-campus mode at Springfield in 2022

* Students may choose [CMS1000 Communication and Scholarship](#) in lieu of [CMS1100 Communicating in the Sciences](#) if they wish.

Recommended Enrolment Pattern - 8 unit major – Food Science

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
BIO1810 Introduction to Food Science	1	1			1	1		
SCI1001 Succeeding in Science	1	1			1	1		
CMS1100 Communicating in the Sciences	1	1			1	1,2		
STA1003 Fundamental Statistics	1	1,2			1	1,2,3	Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.	
MAT1100 Foundation Mathematics	1	2			1	2		
General Elective (or major 2)	1	2			1	2		
General Elective (or major 2)	1	2			1	2		
General Elective (or major 2)	1	2			1	2		
Year 2								
CHE2810 Food Chemistry	2	1			2	1		
General Elective (or major 2)	2	1			2	1		
General Elective (or major 2)	2	1			2	1		
General Elective (or major 2)	2	1			2	1		
CHE2820 Principles of Food Analysis	2	2			2	2		
BIO2810 Nutrition and Health	2	2			2	2		
General Elective (or major 2)	2	2			2	2		
General Elective (or major 2)	2	2			2	2		
Year 3								
BIO3810 Food Processing *	3	1	3	1			HR	
BIO3820 Food Microbiology *	3	1	3	1			HR	

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
General Elective (or major 2)	3	1			3	1		
General Elective (or major 2)	3	1			3	1		
BIO3811 Food Product Development *	3	2	3	2			HR	Pre-requisite: BIO1810
BIO3821 Food Quality Assurance *	3	2	3	2			HR	
General Elective (or major 2)	3	2			3	2		
General Elective (or major 2)	3	2			3	2		

Footnotes

* This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).

Recommended Enrolment Pattern - 8 unit major - Human Physiology

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
BIO1204 Introduction to Biomedical Sciences *	1	1	1	1			HR	
CMS1100 Communicating in the Sciences	1	1			1	1		
SCI1001 Succeeding in Science	1	1			1	1		
BIO1203 Human Anatomy and Physiology 1 *	1	1	1	1,3			HR	
BIO1104 Medical Microbiology and Immunology 1 #	1	2	1	2			M	
STA1003 Fundamental Statistics	1	2			1	2,3		Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.
MAT1100 Foundation Mathematics	1	2			1	2		
BIO1206 Human Anatomy and Physiology 2 *	1	2	1	2			HR	Pre-requisite: BIO1203
Year 2								
BIO2118 Systems Physiology and Pharmacology *	2	1	2	1			HR	Pre-requisite: BIO1203 Co-requisite: STA2300 or STA1003
General Elective (or major 2)	2	1			2	1		
General Elective (or major 2)	2	1			2	1		
General Elective (or major 2)	2	1			2	1		
one of the following two courses :								
BIO2119 Biochemistry of Nutrition	2	2			2	2		Co-requisite: CHE2120
General Elective (or major 2)	2	2			2	2		
BIO2218 Concepts in Endocrinology *	2	2	2	2			HR	Pre-requisite: BIO2118
General Elective (or major 2)	2	2			2	2		
General Elective (or major 2)	2	2			2	2		

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 3								
BIO3103 Applications in Human Tissue Engineering [^]			3	1			M	Pre-requisite: BIO2220 Co-requisite: BIO3102
BIO3102 Human Pathophysiology					3	1		Pre-requisite: BIO2118 and BIO2218
General Elective (or major 2)	3	1			3	1		
General Elective (or major 2)	3	1			3	1		
BIO3201 Extreme Physiology and Pharmacology					3	2		Pre-requisite: BIO2118
General Elective (or major 2)	3	2			3	2		
General Elective (or major 2)	3	2			3	2		
General Elective (or major 2)	3	2			3	2		

Footnotes

- * This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).
- # Mandatory residential school
- [^] Students wishing to take this course should seek advice from the Discipline Coordinator.

Recommended Enrolment Pattern - 8 unit major - Mathematics

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below

Note: Students are not able to enrol in the 12-unit Mathematics and Statistics major or the 8-unit Statistics major as a second major when completing this 8-unit Mathematics major. Students who wish to complete more Statistics courses should choose, or transfer to, the 12-unit Mathematics and Statistics major.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
Year 1							
CMS1100 Communicating in the Sciences	1	1			1	1, 2	
SCI1001 Succeeding in Science	1	1			1	1	
MAT1102 Algebra and Calculus I	1	1			1	1	
STA1003 Fundamental Statistics	1	1,2			1	1,2,3	Enrolment is not permitted in STA1003 if S TA2300 or STA8170 has been previously completed.
CSC1401 Foundation Programming	1	1,2,3			1	1,2,3	
MAT2200 Operations Research 1	1	2			1	2	Pre-requisite: MAT1102 or ENM1600 or equivalent or approval from the examiner. Enrolment is not permitted in MAT2200 if MAT1200 has been previously completed.
MAT2100 Algebra and Calculus II	1	2			1	2	Pre-requisite: MAT1102 or MAT1502 or ENM1600 or Students must be enrolled in the following program: MSCN or MEPR or BSED
General Elective or second major	1	2			1	2	
Year 2							
MAT2409 High Performance Numerical Computing [#]	2	1			2	1	Pre-requisite: (CSC2410 or CSC1401) and (MAT1102 or ENM1600) or Students must

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
							be enrolled in one of the following Programs: MPIT or MCOT or MCTE
General Elective or second major	2	1			2	1	
General Elective or second major	2	1			2	1	
one of the following two courses :							
MAT3105 Harmony of Partial Differential Equations ⁺	2	1			2	1	Pre-requisite: ENM2600 or MAT2100 or MAT2500
MAT3201 Operations Research 2 [*]	2	1			2	1	Pre-requisite: MAT1200 or MAT2200 or Students must be enrolled in one of the following Programs: MSCN or GDSI
General Elective or second major	2	2			2	2	
General Elective or second major	2	2			2	2	
General Elective or second major	2	2			2	2	
one of the following two courses :							
MAT3103 Mathematical Modelling and Dynamical Systems ⁺	2	2			2	2	Pre-requisite: MAT2100 or MAT2500 or ENM2600
MAT3104 Mathematical Modelling in Financial Economics [*]	2	2			2	2	Pre-requisite: (STA2300 or STA1003 or equivalent) and (MAT2100 or MAT2500 or ENM2600)
Year 3							
General Elective or second major	3	1			3	1	
General Elective or second major	3	1			3	1	
General Elective or second major	3	1			3	1	
one of the following two courses :							
MAT3105 Harmony of Partial Differential Equations ⁺	3	1			3	1	Pre-requisite: ENM2600 or MAT2100 or MAT2500
MAT3201 Operations Research 2 [*]	3	1			3	1	Pre-requisite: MAT1200 or MAT2200 or Students must be enrolled in one of the following Programs: MSCN or GDSI
General Elective or second major	3	2			3	2	
General Elective or second major	3	2			3	2	
General Elective or second major	3	2			3	2	
one of the following two courses :							
MAT3103 Mathematical Modelling and Dynamical Systems ⁺	3	2			3	2	Pre-requisite: MAT2100 or MAT2500 or ENM2600
MAT3104 Mathematical Modelling in Financial Economics [*]	3	2			3	2	Pre-requisite: (STA2300 or STA1003 or equivalent) and (MAT2100 or MAT2500 or ENM2600)

Footnotes

- # To enrol in [MAT2409](#) students should ensure they have first completed the prerequisite of [CSC2410](#) (preferred) or [CSC1401](#).
 + The on-campus offering of this course is offered in even-numbered years only.
 * The on-campus offering of this course is offered in odd-numbered years only.

Recommended Enrolment Pattern - 8 unit major - Physical Sciences

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
PHY1104 Physics 1	1	1			1	1		Co-requisite: (MAT1102 or ENM2600) or Students must be enrolled in one of the following Programs: MSCN or GDSI or GCSC
SCI1001 Succeeding in Science	1	1			1	1		
Course selected from 2nd major area or minor or general electives	1	1			1	1		
MAT1102 Algebra and Calculus I	1	1			1	1		
PHY1911 Physics 2	1	2			1	2		Co-requisite: (MAT2100 or ENM1600) or Students must be enrolled in one of the following Programs: MSCN or GDSI or GCSC
MAT2100 Algebra and Calculus II	1	2			1	2		Pre-requisite: MAT1102 or MAT1502 or ENM1600 or S tudents must be enrolled in the following program: MSCN or MEPR or BSED
CMS1100 Communicating in the Sciences	1	1,2			1	1,2		
Course selected from 2nd major area or minor or general electives	1	2			1	2		
Year 2								
PHY2204 Astronomical Techniques					2	1		Pre-requisite: PHY1104 and PHY1911
STA1003 Fundamental Statistics	2	1, 2			2	1,2		Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.
Course selected from 2nd major area or minor or general elective	2	1			2	1		
Course selected from 2nd major area or minor or general elective	2	1			2	1		
PHY2206 Medical Physics					2	2		
PHY2207 Optics					2	2		Pre-requisite: PHY1104 and PHY1911
CSC1401 Foundation Programming	2	1,2,3			2	1,2,3		
Course selected from 2nd major area or minor or general elective	2	2			2	2		
Year 3								
PHY3303 Modern Physics [#]			3	1			HR	Pre-requisite: PHY1104 and PHY1911
PHY3305 Quantum Mechanics					3	1		Pre-requisite or Co-requisite: PHY3303
Course selected from 2nd major area or minor or general elective	3	1			3	1		
Course selected from 2nd major area or minor or general elective	3	1			3	1		

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
PHY3304 Photonics **#			3	2			HR	Pre-requisite: PHY1104 and PHY1911
Course selected from 2nd major area or minor or general elective	3	2			3	2		
Course selected from 2nd major area or minor or general elective	3	2			3	2		
Course selected from 2nd major area or minor or general elective	3	2			3	2		

Footnotes

- # This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).
- ** Students who have completed PHYS313 through UNE are unable to enrol in [PHY3304](#).

Recommended Enrolment Pattern - 8 unit major – Plant Agricultural Science

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
BIO1101 Biology 1 *	1	1	1	1			HR	
SCI1001 Succeeding in Science	1	1			1	1		
CMS1100 Communicating in the Sciences	1	1			1	1,2		
STA1003 Fundamental Statistics	1	1,2			1	1,2,3		Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.
AGR2301 Agricultural Science	1	2			1	2		
MAT1100 Foundation Mathematics	1	2			1	2		
General Elective (or major 2)	1	2			1	2		
General Elective (or major 2)	1	2			1	2		
Year 2								
AGR2303 Agronomy	2	1			2	1		
General Elective (or major 2)	2	1			2	1		
General Elective (or major 2)	2	1			2	1		
General Elective (or major 2)	2	1			2	1		
AGR2304 Plant Breeding *	2	2	2	2			HR	Pre-requisite: BIO1101
BIO2202 Plant Physiology *	2	2	2	2			HR	Pre-requisite: BIO1101
General Elective (or major 2)	2	2			2	2		
General Elective (or major 2)	2	2			2	2		
Year 3								
AGR3304 Soil Science	3	1			3	1		
General Elective (or major 2)	3	1			3	1		
General Elective (or major 2)	3	1			3	1		
General Elective (or major 2)	3	1			3	1		

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
BIO3318 Plant Microbe Interactions *	3	2	3	2			HR	Pre-requisite: BIO1101 or S students must be enrolled in one of the following Program s: BATM or BENV or GCSC or GDSI or MSCN
AGR3305 Precision and Smart Technologies in Agriculture	3	2			3	2		
General Elective (or major 2)	3	2			3	2		
General Elective (or major 2)	3	2			3	2		

Footnotes

* This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).

Recommended Enrolment Pattern - 8 unit major - Statistics

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below

Note: Students are not able to enrol in the 12-unit Mathematics and Statistics major or the 8-unit Mathematics major as a second major when completing this 8-unit Statistics major. Students who wish to complete more Mathematics courses should choose, or transfer to, the 12-unit Mathematics and Statistics major.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
Year 1							
CMS1100 Communicating in the Sciences	1	1			1	1, 2	
SCI1001 Succeeding in Science	1	1			1	1	
MAT1102 Algebra and Calculus I	1	1			1	1	
STA1003 Fundamental Statistics	1	1,2			1	1,2,3	Enrolment is not permitted in STA1003 if S TA2300 or STA8170 has been previously completed.
General Elective (or major 2)	1	2			1	2	
CSC1401 Foundation Programming	1	1,2,3			1	1,2,3	
MAT2100 Algebra and Calculus II	1	2			1	2	Pre-requisite: MAT1102 or MAT1502 or ENM1600 or Students must be enrolled in the following program: MSCN or MEPR or BSED
General Elective (or major 2)	1	2			1	2	
Year 2							
MAT2409 High Performance Numerical Computing #	2	1			2	1	Pre-requisite: (CSC2410 or CSC1401) and (MAT1102 or ENM1600) or Students must be enrolled in one of the following Programs: MPIT or MCOT or MCTE
STA2301 Distribution Theory *	2	1			2	1	Pre-requisite: (STA2300 or STA1003 or equivalent) and (MAT1102 or ENM1600)
STA3200 Multivariate Statistical Methods					2	1	Pre-requisite: STA2300 or STA1003
General Elective (or major 2)	2	1			2	1	
STA2302 Statistical Inference					2	2	Pre-requisite: STA2301
General Elective (or major 2)	2	2			2	2	
General Elective (or major 2)	2	2			2	2	

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
General Elective (or major 2)	2	2			2	2	
Year 3							
STA3300 Experimental Design *	3	1			3	1	Pre-requisite: STA2300 or STA1003 or equivalent or approval of examiner
General Elective (or major 2)	3	1			3	1	
General Elective (or major 2)	3	1			3	1	
General Elective (or major 2)	3	1			3	1	
STA3301 Statistical Models *	3	2			3	2	Pre-requisite: STA3300 or approval of examiner or Students must have completed STA8170 and be enrolled in one of the following Programs: GCSC or GDSI or MSCN or MADS or MSCR or DPHD.
General Elective (or major 2)	3	2			3	2	
General Elective (or major 2)	3	2			3	2	
General Elective (or major 2)	3	2			3	2	

Footnotes

- # To enrol in MAT2409 students should ensure they have first completed the prerequisite of CSC2410 (preferred) or CSC1401. Alternatively, students may choose MAT2200 (no prerequisites required) as an approved replacement for MAT2409.
- * Unavailable in on-campus mode in 2022

Recommended Enrolment Pattern - 8 unit major - Wildlife Management

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
SCI1001 Succeeding in Science	1	1			1	1		
CMS1100 Communicating in the Sciences	1	1			1	1,2		
WLF2101 Management of Wildlife *	1	1	1	1			HR	
General Elective (Or Major 2)	1	1			1	1		
General Elective (Or Major 2)	1	2			1	2		
WLF1201 Field Skills for Wildlife, Game and Pest Management +			1	2			M	
MAT1100 Foundation Mathematics	1	2			1	2		
WLF2201 Vertebrate Pests and Biosecurity *	1	2	1	2			HR	
Year 2								
STA1003 Fundamental Statistics	2	1,2			2	1,2,3	Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.	
General Elective (Or Major 2)	2	1			2	1		
General Elective (Or Major 2)	2	1			2	1		
General Elective (Or Major 2)	2	1			2	1		
General Elective (Or Major 2)	2	2			2	2		

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
General Elective (Or Major 2)	2	2			2	2		
General Elective (Or Major 2)	2	2			2	2		
General Elective (Or Major 2)	2	2			2	2		
Year 3								
WLF3101 Principles of Wildlife Management & Sustainable Use [^]					3	1		
SCI3301 Science Project					3	1,2		
General Elective (Or Major 2)	3	1			3	1		
General Elective (Or Major 2)	3	1			3	1		
WLF3201 Captive Wildlife Management ^{+^}	3	2	3	2			HR	
REN3301 Biodiversity and Conservation	3	2			3	2		
SCI3302 Industry Placement	3	1,2,3	3	1,2,3				Pre-requisite: Completion of 2nd year (or 2 years full time study in a relevant area)
General Elective (Or Major 2)	3	2			3	2		

Footnotes

- * This offering has a highly recommended residential school (linked to an assessment item and non-attendance will mean a student misses an element for assessment preparation or an element of assessment).
- + This course has a mandatory residential school
- [^] This course will be introduced in 2024

Recommended Enrolment Pattern - 8 unit major - Wine Science

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students studying part-time should complete the major in a logical sequence as to reflect as close as possible the enrolment pattern below.

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
WIN1101 Grape and Wine Production					1	1		
Elective (Or Major 2)	1	1			1	1		
SCI1001 Succeeding in Science	1	1			1	1		
General Elective (Or Major 2)	1	1			1	1		
General Elective (Or Major 2)	1	2			1	2		
CMS1100 Communicating in the Sciences					1	2		
STA1003 Fundamental Statistics	1	2			1	2,3		Enrolment is not permitted in STA1003 if STA2300 or STA8170 has been previously completed.
MAT1100 Foundation Mathematics	1	2			1	2		
Year 2								
WIN2200 Viticultural and Winemaking Practice			2	1			M	Co-requisite: WIN1101
General Elective (Or Major 2)	2	1			2	1		
General Elective (Or Major 2)	2	1			2	1		
General Elective (Or Major 2)	2	1			2	1		
WIN2215 Wine Biochemistry and Microbiology					2	2		Pre-requisite: WIN1101

Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
WIN2220 Wine Production					2	2		Pre-requisite: WIN1101
WIN2210 Viticultural Principles and Production					2	2		Pre-requisite: WIN1101
General Elective (Or Major 2)	2	2			2	2		
Year 3								
General Elective (Or Major 2)	3	1			3	1		
SCI3302 Industry Placement	3	3	3	1,2,3				Pre-requisite: Completion of 2nd year (or 2 years full time study in a relevant area)
General Elective (Or Major 2)	3	1			3	1		
General Elective (Or Major 2)	3	1			3	1		
WIN3310 Wine Sensory Analysis			3	2			M	Pre-requisite: WIN1101
General Elective (Or Major 2)	3	2			3	2		
General Elective (Or Major 2)	3	2			3	2		
WIN3304 Viticultural and Winemaking Practice 2			3	3			M	Pre-requisite: WIN1101