

## Graduate Certificate of Science (GCSC) - GradCertSci

QTAC code (Australian and New Zealand applicants): Toowoomba campus: GCSC01; External: GCSC02

CRICOS code (International applicants): 069701A

	On-campus*+	External#*
<b>Start:</b>	Semester 1 (February) Semester 2 (July)	Semester 1 (February) Semester 2 (July) Semester 3 (November)
<b>Campus:</b>	Toowoomba	-
<b>Fees:</b>	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
<b>Standard duration:</b>	1 semester full-time, 1 year part-time	
<b>Program articulation:</b>	To: <a href="#">Graduate Diploma of Science</a>	

### Footnotes

- \* Please refer to the Program Structure for further information on mode of offer for each specialisation.
- + The Computing specialisation is available to international on-campus students at USQ Toowoomba.
- # Only the Applied Data Science, Computing or General (depending on the courses chosen) specialisations have a Semester 3 intake.

### Contact us

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

### Program aims

The Graduate Certificate of Science provides students with the opportunity to further their knowledge in discipline areas critical to their professional responsibilities and interests.

### Program objectives

On completion of the program graduates should be able to:

- Understand a body of specialised knowledge in a discipline of science
- Apply established theories to a body of specialised knowledge or practice in a relevant science discipline
- Critically analyse and reflect on complex information, problems, concepts and theories applicable to a relevant science discipline
- Interpret and transmit specialised knowledge, skills and ideas, both individually and collaboratively, to a range of audiences
- Display autonomy, responsibility, adaptability and ethical practise in decision-making and engage in lifelong learning through critical reflection in a range of professional and cultural contexts.

## 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 08. Graduates at this level will have advanced knowledge and skills for professional or highly skilled work and/or further learning.

The full set of levels criteria and qualification type descriptors can be found by visiting [www.aqf.edu.au](http://www.aqf.edu.au).

## Admission requirements

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

- Completion of an Australian university three year Bachelor degree in any area, or equivalent.  
Or  
equivalent professional work experience, as determined through the [Credit and Exemption Procedure](#).
- English Language Proficiency requirements for Category 3.

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.

## 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

All specialisations within the program consist of four units of study taken from the Recommended Enrolment Pattern section. The Program Director, via [usq.support@usq.edu.au](mailto:usq.support@usq.edu.au) may also grant substitution of one course

from outside these disciplines. At least two courses must be Level 8 (all specialisations). The student must select courses according to the pre- and co-requisite requirements contained in individual course specifications. Some courses may include a mandatory or highly recommended residential school.

Specialisation	Offering		
	ONC	ONL	EXT
Agricultural Science (part-time only) <sup>@</sup>	Toowoomba	Online	or external with highly recommended residential schools depending on chosen approved courses
Applied Climate Science (part-time only)		Online only	
Applied Data Science (part-time only) <sup>^</sup>	Toowoomba	Online	
Astronomy (part-time only)		Online only	
Biology (part-time only) <sup>@</sup>	Toowoomba	Online	or external with highly recommended residential schools depending on chosen approved courses
Chemistry (part-time only) <sup>@</sup>	Toowoomba		external (some courses have highly recommended residential schools)
Computing (full-time or part-time) <sup>@</sup>	Toowoomba	Online	or external (some courses, depending on topics, have workshops)
Environment and Sustainability (part-time only)	Toowoomba	Online	
Mathematics and Statistics (part-time only)	Toowoomba	Online	
Mathematics for High School Teaching (part-time only) <sup>#</sup>	Toowoomba	Online	
Mathematics for Primary/Middle School Teaching (part-time only) <sup>#</sup>		Online only	
Physics (part-time only)		Online only	
Science for Primary/Middle School Teaching (full-time or part-time) <sup>#@</sup>	Toowoomba	Online	or external with highly recommended residential schools depending on chosen approved courses
Wine Science (S1 part-time only, S2 full-time or part-time) <sup>@</sup>	Toowoomba	Online	or external with mandatory or highly recommended residential schools depending on chosen approved courses).

General	Toowoomba	Online	or external with highly recommended residential schools depending on chosen approved courses
---------	-----------	--------	--

#### Footnotes

- @ Some approved courses for selection have mandatory or highly recommended residential schools and students enrolled externally must be able to attend the residential schools at the specified USQ campus.
- ^ The Semester 2 intake for the Applied Data Science specialisation will be subject to the approval of the Program Director and may only be available less than part-time (<2 courses in some semesters).
- # The teaching specialisations alone do not meet eligibility for teacher registration and therefore should only be taken by students who already have completed an initial teacher education program.

Those teachers studying who are relying on government scholarships or are seeking accreditation in a particular state, are advised to check with their funding agency or Education Authority that they are enrolled in an appropriate approved combination of courses. For further advice on these and other possible course combinations please contact the Program Director via [usq.support@usq.edu.au](mailto:usq.support@usq.edu.au).

### Required time limits

Students have a maximum of 3 years to complete this program.

### 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.

Students will need internet access to retrieve course materials, undertake assessment and participate in course online activities.

### 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](#).

#### Agricultural Science (approved course)

- [BIO3318 Plant Microbe Interactions](#)

#### Biology (approved course)

- [BIO2107 Cell and Molecular Biology 1](#)
- [BIO2202 Plant Physiology](#)
- [BIO3207 Cell and Molecular Biology 2](#)

#### Chemistry (core courses)

- [CHE1110 Chemistry 1](#)
- [CHE2120 Chemistry 2](#)

#### Science for Primary/Middle School Teaching (approved courses)

- [CHE1110 Chemistry 1](#)
- [CHE2120 Chemistry 2](#)

#### Wine Science (approved courses)

- [CHE1110 Chemistry 1](#)
- [WIN2200 Viticultural and Winemaking Practice](#)
- [BIO2202 Plant Physiology](#)

## Articulation

A student successfully completing all courses in the Graduate Certificate of Science program will receive full credit towards the [Graduate Diploma of Science](#) in the same specialisation. Students intending to continue with the Graduate Diploma must apply for separate admission and may EITHER Graduate with a Graduate Certificate and receive full credit as exemptions into the Graduate Diploma, OR choose not to graduate with the Graduate Certificate, in order to transfer their grades, maintain their GPA and articulate into the Graduate Diploma and ultimately qualify from this higher award only. Students who wish to transfer their grades and maintain their GPA into the Graduate Diploma, must advise the Faculty in writing ([usq.support@usq.edu.au](mailto:usq.support@usq.edu.au)) of their intention to articulate and this must occur prior to completion of the Graduate Certificate of Science.

## Credit

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

Students who have successfully completed STA2300 are not permitted to undertake [STA8170 Statistics for Quantitative Researchers](#). Instead they should contact the Program Director to choose an alternative Level 8 course.

**Applied Data Science specialisation:** Where a student's enrolment pattern does not allow them to complete [STA8170 Statistics for Quantitative Researchers](#) in S1, they may replace it with STA2300 in S2 or S3, as long as the student completes the required number of Level 8 courses for their program.

## Enrolment

Enrolment patterns will need to be determined for individual students. On acceptance into the program, students must submit an enrolment pattern for approval to the Program Director via [usq.support@usq.edu.au](mailto:usq.support@usq.edu.au).

Pre-requisite courses should be taken as a guide to the assumed knowledge required for a course. It is the student's responsibility to ensure that they have the assumed knowledge before enrolling in a particular course.

## Agricultural Science specialisation recommended enrolment pattern - part-time

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.

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		
<a href="#">AGR8001 Food Security in the 21st Century</a>		1				1		
Approved course (Select from the approved course list below)								
<a href="#">AGR8003 Critical Issues in Agriculture</a>		2				2		
Approved course (Select from the approved course list below)								
<b>Approved courses: Choose two from the following:</b>								
<a href="#">AGR2303 Agronomy</a>		1				1		
<a href="#">AGR3303 Agricultural Materials and Post-Harvest Technologies</a>		1				1		
<a href="#">AGR4305 Agricultural Soil Mechanics</a>						1		
<a href="#">CLI8001 Climate Risk</a>						1		
<a href="#">SCI3302 Industry Placement</a> <sup>#</sup>		3		1,2,3			Pre-requisite: Completion of 2nd year (or 2 years full time study in a relevant area)	
<a href="#">AGR8002 Emerging Technologies in Agriculture</a>		2				2		
<a href="#">BIO3318 Plant Microbe Interactions</a> <sup>^</sup>		2		2			HR Pre-requisite: <a href="#">BIO1101</a> or S students must be enrolled in one of the following Program	

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		
								s: BATM or BENV or GCSC or GDSI or MSCN
<a href="#">BIO8201 Biology Foundations</a>						2		
<a href="#">ENV4106 Irrigation Science</a>		2				2		Pre-requisite: <a href="#">AGR3304</a> or Students must be enrolled in one of the following Programs: GCEN or GCSC or GDSI or METC or MEPR or GCNS or GDNS or MENS or MSCN.
<a href="#">REN3302 Sustainable Resource Use</a>		2		2				

#### Footnotes

- # Industry Placement may be available subject to approval of the Program Director and availability of relevant placement.  
^ 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).

### Applied Climate Science specialisation recommended enrolment pattern - part-time Semester 1 entry

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.

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	
<a href="#">CLI8204 Global Environmental Systems</a>						1	
<a href="#">CLI8001 Climate Risk</a>						1	
<a href="#">CLI8205 Climate and Sustainability</a>						2	
<a href="#">CLI3302 Adaptation to Climate Change</a>						2	

### Applied Data Science specialisation recommended enrolment pattern - part-time S1 entry

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.

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	
<a href="#">STA8170 Statistics for Quantitative Researchers</a>		1				1,2	Enrolment is not permitted in <a href="#">STA8170</a> if <a href="#">STA2300</a> or <a href="#">STA1003</a> has been previously completed.
<a href="#">CSC5020 Foundations of Programming</a>		1,2,3				1,2,3	
<a href="#">CSC8001 Introduction to Data Science and Visualisation</a>		2				2	
<a href="#">CSC8002 Big Data Management</a>		2				2,3	Pre-requisite or Co-requisite: ( <a href="#">CSC1401</a> or <a href="#">CSC5020</a> ) and ( <a href="#">STA2300</a> or <a href="#">STA1003</a> or <a href="#">STA8170</a> ) or equivalent program and statistical knowledge and skills

## Astronomy specialisation recommended enrolment pattern - part-time

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.

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	
<a href="#">SCI8103 Research Fundamentals and Ethics</a>						1,2	Pre-requisite: Students must be enrolled in one of the following programs: MSCN or MSCR or MCTN or MADS or GCSC or GDSI or DPHD or its equivalent. Enrolment is not permitted in <a href="#">SCI8103</a> if <a href="#">SCI4405</a> has been previously completed.
<a href="#">PHY1101 Astronomy 1</a> *		1				1	
<a href="#">SCI8102 Research Skills</a>						1,2	
<a href="#">PHY1107 Astronomy 2</a> *		2				2	

### Footnotes

\* Astronomical observations for each course are made remotely via internet access to USQ'S Mt Kent Observatory. Voluntary field nights will also be made available.

## Biology specialisation recommended enrolment pattern - part-time

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.

At least two of the four courses completed must be at Level 8.

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		
Approved course (Select from the approved course list below):		1		1		1		
Approved course (Select from the approved course list below):		1		1		1		
<a href="#">BIO8201 Biology Foundations</a>						2		
Approved course (Select from the approved course list below):		2		2		2		
<b>Approved courses: Choose three from the following (at least one must be Level 8):</b>								
<a href="#">AGR8001 Food Security in the 21st Century</a>						1		
<a href="#">BIO2107 Cell and Molecular Biology 1</a> <sup>†</sup>		1		1			HR Pre-requisite: <a href="#">CHE2120</a>	
<a href="#">BIO3207 Cell and Molecular Biology 2</a> <sup>†</sup>		2		2			HR Pre-requisite: <a href="#">BIO2107</a>	
<a href="#">BIO3318 Plant Microbe Interactions</a> <sup>†</sup>		2		2			HR Pre-requisite: <a href="#">BIO1101</a> or S students must be enrolled in one of the following Program s: <a href="#">BATM</a> or <a href="#">BENV</a> or <a href="#">GCSC</a> or <a href="#">GDSI</a> or <a href="#">MSCN</a>	
<a href="#">REN8101 Environment, Society and Sustainability</a>						1	Enrolment is not permitted in <a href="#">REN8101</a> if <a href="#">REN201</a> has been previously completed.	
<a href="#">REN3301 Biodiversity and Conservation</a>		2				2		
<a href="#">BIO2219 Genetics</a>		2				2	Pre-requisite: <a href="#">BIO1100</a> or <a href="#">BIO1101</a> or <a href="#">BIO1204</a> or <a href="#">AGR1101</a>	
<a href="#">BIO2202 Plant Physiology</a> <sup>†</sup>				2			HR Pre-requisite: <a href="#">BIO1101</a>	

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		
<a href="#">REN8202 Conservation for Sustainable Futures</a>						2		Enrolment is not permitted in <a href="#">REN8202</a> if <a href="#">REN2200</a> has been previously completed.

#### 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).

## Chemistry specialisation recommended enrolment pattern - part-time

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.

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		
<a href="#">SCI8103 Research Fundamentals and Ethics</a>						1		Pre-requisite: Students must be enrolled in one of the following programs: MSCN or MSCR or MCTN or MADS or GCSC or GDSI or DPHD or its equivalent. Enrolment is not permitted in <a href="#">SCI8103</a> if <a href="#">SCI4405</a> has been previously completed.
<a href="#">CHE1110 Chemistry 1</a> <sup>†</sup>		1		1			HR	
<a href="#">SCI8102 Research Skills</a>						1,2		
<a href="#">CHE2120 Chemistry 2</a> <sup>†</sup>		2		2			HR	Pre-requisite: <a href="#">CHE1110</a>

#### Footnotes

† External 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).

## Computing specialisation recommended enrolment pattern - full-time or part-time

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.

Take four approved courses, with at least two being at Level 8.

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	
<b>Approved courses (at least two must be at Level 8):</b>							
<a href="#">CSC8450 Relational Database Systems</a>		1				1	Pre-requisite: <a href="#">CSC5090</a>
<a href="#">CSC8503 Principles of Programming Languages</a>		1				1	Pre-requisite: <a href="#">CSC2402</a> or enrolled in <a href="#">CSC2402</a> at the same time as <a href="#">CSC8503</a> or Students must be enrolled in one of the following Programs: GDTI or GCSC or MCTN
<a href="#">CSC8510 Internetworking</a>		2				2	Co-requisite: <a href="#">CSC5050</a>
<a href="#">CSC2402 Object-Oriented Programming in C++</a>		1				1	Pre-requisite: <a href="#">CSC1401</a> 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
<a href="#">CSC2408 Software Development Tools</a>		1,2				1,2	Pre-requisite: <a href="#">CSC1401</a>



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	
<a href="#">CSC8513 Network Performance Analysis</a>		2				2	Pre-requisite: Students must be enrolled in one of the following Programs: GDTI or GCSC or MCTN or MCYS or MCOP
<a href="#">CSC8540 Routing and Switching</a>		2				2	Pre-requisite: <a href="#">CSC8510</a>
<a href="#">CSC5020 Foundations of Programming</a>		1,2,3				1,2,3	
<a href="#">CSC2401 Algorithms and Data Structures</a>		2				2	Pre-requisite: <a href="#">CSC2402</a> 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
<a href="#">CSC2404 Operating Systems</a>		2				2	Pre-requisite: <a href="#">CSC1401</a> or <a href="#">CSC2408</a> or have experience using Linux systems 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
<a href="#">CSC2406 Web Technology 1</a>		2				2	Pre-requisite: <a href="#">CSC1401</a> 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
<a href="#">CSC2407 Introduction to Software Engineering</a>		2				2	Pre-requisite: <a href="#">CSC1401</a> 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

### Environment and Sustainability specialisation recommended enrolment pattern - part-time

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.

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	
<a href="#">REN8101 Environment, Society and Sustainability</a>						1	Enrolment is not permitted in <a href="#">REN8101</a> if <a href="#">REN1201</a> has been previously completed.
<a href="#">SCI8103 Research Fundamentals and Ethics</a>						1	Pre-requisite: Students must be enrolled in one of the following programs: MSCN or M SCR or MCTN or MADS or GCSC or GDSI or DPHD or its equivalent. Enrolment is not permitted in <a href="#">SCI8103</a> if <a href="#">SCI4405</a> has been previously completed.
<b>Approved courses: Take any two of the following::</b>							
<a href="#">REN8202 Conservation for Sustainable Futures</a>						2	Enrolment is not permitted in <a href="#">REN8202</a> if <a href="#">REN2200</a> has been previously completed.
<a href="#">REN3301 Biodiversity and Conservation</a>		2				2	
<a href="#">REN3302 Sustainable Resource Use</a>		2				2	
<a href="#">CLI8204 Global Environmental Systems</a>						1	
<a href="#">CLI8205 Climate and Sustainability</a>						2	

### Mathematics and Statistics specialisation recommended enrolment pattern - part-time

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 may seek approval from the Discipline Coordinator to enrol in courses not listed in this table.

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		
<a href="#">STA8170 Statistics for Quantitative Researchers</a>		1					1,2	Enrolment is not permitted in <a href="#">STA8170</a> if S TA2300 or <a href="#">STA1003</a> has been previously completed.
<a href="#">MAT1102 Algebra and Calculus I</a>		1					1	
<a href="#">MAT8190 Mathematics/Statistics Complementary Studies B</a> **		2					2	
<a href="#">CSC2410 Computational Thinking with Python</a>		2					2	

#### Footnotes

\*\* MAT8190 is a topics based course. Students should select their topic from the course specifications and email the examiner prior to enrolment to receive enrolment approval.

### Mathematics for High School Teaching specialisation recommended enrolment pattern - part-time

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.

**This specialisation alone does not meet eligibility for teacher registration and therefore should only be taken by students who already have completed an initial teacher education program.**

Students may seek approval from the Discipline Coordinator to enrol in courses not listed in this table.

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		
<a href="#">MAT1102 Algebra and Calculus I</a> <sup>#</sup>		1					1	
<a href="#">MAC8901 Issues in Teaching Mathematics</a>							2	
<a href="#">STA8170 Statistics for Quantitative Researchers</a>		1					1,2	Enrolment is not permitted in <a href="#">STA8170</a> if S TA2300 or <a href="#">STA1003</a> has been previously completed.

**Approved courses: Choose one of the following (other courses are available from the Mathematics and Statistics specialisation):**

<a href="#">MAT2100 Algebra and Calculus II</a> <sup>#</sup>		2					2	Pre-requisite: <a href="#">MAT1102</a> or MAT1502 or <a href="#">ENM1600</a> or Students must be enrolled in the following program: MSCN or MEPR or BSED
<a href="#">MAT2200 Operations Research 1</a>		2					2	Pre-requisite: <a href="#">MAT1102</a> or <a href="#">ENM1600</a> or equivalent or approval from the examiner. Enrolment is not permitted in <a href="#">MAT2200</a> if <a href="#">MAT1200</a> has been previously completed.
<a href="#">MAT1101 Discrete Mathematics for Computing</a>		1					1	

#### Footnotes

# [MAT1102](#) and [MAT2100](#) give a higher level of Algebra & Calculus that are essential for teaching Mathematics B & C (or equivalent) in schools. Students without an appropriate background for MAT1102 should contact the Program Director via [usq.support@usq.edu.au](mailto:usq.support@usq.edu.au) to discuss options. Students can take [ENM1600](#) and [ENM2600](#) as alternatives to these two courses with the approval of the Program Director.

### Mathematics for Primary/Middle School Teaching specialisation recommended enrolment pattern - part-time

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.

**This specialisation alone does not meet eligibility for teacher registration and therefore should only be taken by students who already have completed an initial teacher education program.**

Students may seek approval from the Discipline Coordinator to enrol in courses not listed in this table.

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	
Approved Course (choose from the list below):							1,2
Approved Course (choose from the list below):							1
<a href="#">MAC8901 Issues in Teaching Mathematics</a>							2
<a href="#">STA8190 Advanced Statistics B</a> **							2
<b>Approved courses: Choose two of the following:</b>							
<a href="#">MAT1100 Foundation Mathematics</a>		2					2
<a href="#">MAT1000 Mathematics Fundamentals</a>		1					1
<a href="#">EDU8326 Learning Difficulties: Mathematics</a>							1

#### Footnotes

\*\* [STA8190](#) is a topics based course. Students should select their topic from the course specifications and email the examiner prior to enrolment to receive enrolment approval.

### Physics specialisation recommended enrolment pattern - part-time

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.

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	
<a href="#">PHY1104 Physics 1</a>		1					Co-requisite: ( <a href="#">MAT1102</a> or <a href="#">ENM2600</a> ) or S tudents must be enrolled in one of the follow ing Programs: MSCN or GDSI or GCSC
<a href="#">SCI8103 Research Fundamentals and Ethics</a>							1 Pre-requisite: Students must be enrolled in one of the following programs: MSCN or M SCR or MCTN or MADS or GCSC or GDSI or DPHD or its equivalent. Enrolment is not permitted in <a href="#">SCI8103</a> if <a href="#">SCI4405</a> has been previously completed.
<a href="#">PHY1911 Physics 2</a>		2					2 Co-requisite: ( <a href="#">MAT2100</a> or <a href="#">ENM1600</a> ) or S tudents must be enrolled in one of the follow ing Programs: MSCN or GDSI or GCSC
<a href="#">SCI8102 Research Skills</a>							2

### Science for Primary/Middle School Teaching specialisation recommended enrolment pattern

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.

**This specialisation alone does not meet eligibility for teacher registration and therefore should only be taken by students who already have completed an initial teacher education program.**

Choose four approved courses, at least two of which must be at Level 8.

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		
<b>Approved courses: Choose four courses, at least two of which must be at Level 8:</b>								
<a href="#">CHE1110 Chemistry 1</a> <sup>†</sup>		1		1			HR	
<a href="#">CLI1110 Weather and Climate</a>		1				1		
<a href="#">PHY1101 Astronomy 1</a> <sup>*</sup>		1				1		
<a href="#">PHY1104 Physics 1</a> <sup>+</sup>		1				1		Co-requisite: ( <a href="#">MAT1102</a> or <a href="#">ENM2600</a> ) or Students must be enrolled in one of the following Programs: MSCN or GDSI or GCSC
<a href="#">REN8101 Environment, Society and Sustainability</a>						1		Enrolment is not permitted in <a href="#">REN8101</a> if <a href="#">REN1201</a> has been previously completed.
<a href="#">SCI8103 Research Fundamentals and Ethics</a>						1		Pre-requisite: Students must be enrolled in one of the following programs: MSCN or MSCR or MCTN or MADS or GCSC or GDSI or DPHD or its equivalent. Enrolment is not permitted in <a href="#">SCI8103</a> if <a href="#">SCI4405</a> has been previously completed.
<a href="#">REN3301 Biodiversity and Conservation</a>		2				2		
<a href="#">REN3302 Sustainable Resource Use</a>		2				2		
<a href="#">CHE2120 Chemistry 2</a> <sup>†</sup>		2		2			HR	Pre-requisite: <a href="#">CHE1110</a>
<a href="#">PHY1911 Physics 2</a>		2				2		Co-requisite: ( <a href="#">MAT2100</a> or <a href="#">ENM1600</a> ) or Students must be enrolled in one of the following Programs: MSCN or GDSI or GCSC
<a href="#">PHY1107 Astronomy 2</a> <sup>*</sup>		2				2		
<a href="#">REN8202 Conservation for Sustainable Futures</a>						2		Enrolment is not permitted in <a href="#">REN8202</a> if <a href="#">REN2200</a> has been previously completed.
<a href="#">BIO8201 Biology Foundations</a>						2		

#### Footnotes

- † External 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).
- \* Astronomical observations for each course are made remotely via Internet access to USQ's Mt Kent Observatory. Voluntary field nights will also be made available.
- + This course uses in-home practical kits. There is no residential school requirement.

### Wine Science specialisation recommended enrolment pattern - part-time

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.

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		
<a href="#">SCI8103 Research Fundamentals and Ethics</a>						1		Pre-requisite: Students must be enrolled in one of the following programs: MSCN or

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		
								MSCR or MCTN or MADS or GCSC or GDSI or DPHD or its equivalent. Enrolment is not permitted in <a href="#">SCI8103</a> if <a href="#">SCI4405</a> has been previously completed.
Approved course: (choose from the list below):								
<a href="#">BIO8201 Biology Foundations</a>						2		
Approved course: (choose from the list below):								
<b>Approved courses: Choose two from the following:</b>								
<a href="#">SCI8102 Research Skills</a>						1,2		
<a href="#">WIN1101 Grape and Wine Production</a>						1		
<a href="#">WIN2220 Wine Production</a>						2		Pre-requisite: <a href="#">WIN1101</a>
<a href="#">CHE1110 Chemistry 1</a> †		1		1			HR	
<a href="#">WIN2200 Viticultural and Winemaking Practice</a> *				1			M	Co-requisite: <a href="#">WIN1101</a>
<a href="#">WIN2215 Wine Biochemistry and Microbiology</a>						2		Pre-requisite: <a href="#">WIN1101</a>
<a href="#">SCI3302 Industry Placement</a>		3		1,2,3				Pre-requisite: Completion of 2nd year (or 2 years full time study in a relevant area)
<a href="#">BIO2202 Plant Physiology</a> †				2			HR	Pre-requisite: <a href="#">BIO1101</a>

#### 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 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).

## General Specialisation

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.

This specialisation enables students to choose four courses from within any of the Graduate Certificate of Science specialisations, with at least 2 courses being at level 8. This specialisation is designed primarily to enable a general exit point from the [GDSI Graduate Diploma of Science](#) or the [MSCN Master of Science](#).