

Graduate Certificate in Science (GCSC) - GradCertSci

CRICOS code (International applicants): 069701A

	On-campus	Distance education
Semester intake:	Semester 1 (March) Semester 2 (July)	Semester 1 (March) Semester 2 (July)
Campus:	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
Standard duration:	1 semester full-time, 1 year part-time	

Contact us

Future Australian and New Zealand students	Future International students	Current students
Ask a question Freecall (within Australia): 1800 640 678 Phone (from outside Australia): +61 7 4631 5315 Email: studysci@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: usqassist@usq.edu.au

Program focus

The Graduate Certificate in Science aims to provide school teachers and others with an opportunity to further their knowledge in areas critical to their professional responsibilities and interests.

Program aims

The Graduate Certificate in Science aims to provide school teachers and others with an opportunity to further their knowledge in areas critical to their professional responsibilities and interests.

Program objectives

On completion of this program graduates will be able to demonstrate:

- understanding of current issues in their chosen discipline
- enhanced breadth and depth of their knowledge base relevant to teaching
- practical skills in relevant laboratory practice and/or field work.

Admission requirements

To be eligible for admission to this program, applicants must have a three-year degree from an Australian or other recognized University or equivalent.

International Applicants

International applicants must have met the [University's English language](#) requirements or have completed the [University's ELICOS/EAP programs](#) .

How to apply

Domestic students

[Application for postgraduate programs](#) may be made directly to USQ. You should ensure you submit your application by the [closing dates](#).

International students

This program is offered to international students. An international student is a person who is not an Australian or New Zealand citizen and not an Australian permanent resident. Please refer to [USQ International](#) for information about entry requirements, visa arrangements and how to apply.

Program fees

Commonwealth supported place

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

Domestic full fee paying students may be eligible to defer their fees through a Government loan called [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. You are able to calculate the fees for a particular course via the [Course Fee Finder](#).

Program structure

The program comprises four one-semester courses in the disciplines of science, or mathematics, or computing, and can also be used to study a combination of courses in these disciplines. The Program Coordinator also may grant substitution of one course from outside these disciplines.

Students may choose up to four first-level courses to complete the program.

Subject Area	Residential School Requirements for EXT Courses
Astronomy (PHY)	External only – no residential school requirement
Biology (BIO)	All courses available on-campus, some courses available in both modes – some external courses have compulsory residential schools
Computing (CSC)	Available in both modes — no residential school requirement
Chemistry (CHE)	On-campus only
Climatology (CLI)	Available in both modes – no residential school requirement
Maths (MAT)	Available in both modes – no residential school requirement
Physics (PHY)	Available in both modes – no residential school requirement
Environment & Sustainability (REN)	Available in both modes — no residential school requirement
Wine Technology (WIN)	Some courses available externally with no residential schools, some courses available on-campus with a compulsory residential school.

Required time limits

Students have a maximum of 4 years to complete this program.

Practical experience

Students will obtain practical and/or field work experience as part of individual courses studied.

IT requirements

Students should visit the USQ [Recommended Hardware](#) and [Recommended Software](#) sites 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

Some or all of the courses in some science and maths disciplines are offered externally (see the above table). For details of residential school requirements (if any) for a specific course are contained within the course specifications. However, preliminary information can be obtained by consulting the Bachelor of Science entry in the Handbook. The details of specific course offerings are detailed there. Most courses offered in on-campus mode have laboratory and/or field work attendance requirements; these are detailed in their course specifications.

Exemptions

No exemptions are available for this program.

Recommended Enrolment Pattern

There is no set enrolment pattern as this program is designed to allow students flexibility to choose courses according to individual needs, interests and prior study. However, please note that:

- The student must select courses according to the pre- and co-requisite requirements contained in individual course specifications.
- Some courses include a compulsory residential school.
- Students have a maximum of 4 years to complete this program.
- Those teachers studying who are relying on government scholarships are advised to check with their funding agency that they are enrolled in an appropriate approved combination of courses.
- Students seeking specific course combinations to upgrade their skills may wish to follow one of the following recommended enrolment patterns listed below. For further advice on these and other possible course combinations please contact the Program Coordinator.

Astronomy

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
PHY1101 Astronomy 1				1			
PHY2204 Astronomy and Astrophysics				1			OE
PHY1107 Astronomy 2				2			
SCI3301 Science Project#				2			OE

Footnotes

Students enrolling in [SCI3301](#) need to arrange project supervision in advance.

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

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.

Biomedical Science (Cellular Emphasis)

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
The selection of courses below for 2010 should be augmented in 2011 due to the introduction of a BBMS Bachelor of Biomedical Science and a new Laboratory Medicine program.							
Choose four of the following courses:							
BIO2201 Biochemistry 1		1					Pre-requisite: CHE2120 OE
BIO2209 Cell Biology		1					Pre-requisite: BIO2103 Co-requisite: BIO2201
BIO3315 Medical Microbiology 2		1					Pre-requisite: BIO2205
BIO3317 Medical Microbiology 1		1					Pre-requisite: BIO2205
BIO2205 Introductory Microbiology		2					Pre-requisite: BIO1101 OE
BIO2207 Genetics		2					Pre-requisite: BIO2103 and STA2300
BIO3301 Biochemistry 2		2					Pre-requisite: BIO2201
BIO3309 Molecular Biology		2					Pre-requisite: BIO2209 Co-requisite: BIO2205

Footnotes

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Biomedical Science (Whole Body Emphasis)

Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Choose four of the following courses								
BIO2203 Human Physiology		1					Pre-requisite: BIO1203 or BIO2103	
BIO3313 Human Physiology and Pharmacology in Disease 1		1					Pre-requisite: BIO2203 and BIO2213	
BIO1203 Human Anatomy and Physiology		2		3			C	
BIO2213 Pharmacology		2					Pre-requisite: BIO2203	
BIO3323 Human Physiology and Pharmacology in Disease 2		2					Pre-requisite: BIO3313 or equivalent	
BIO3333 Cardiorespiratory and Sports Physiology							Pre-requisite: BIO2203	

Biology

Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Take the following two courses:								
CHE1110 Chemistry 1^#		1		1			C	
CHE2120 Chemistry 2^#		2		2			C Pre-requisite: CHE1110	
Plus choose two from the following:								
BIO1101 Biology 1^		1		1			C	
BIO2201 Biochemistry 1**#		1					Pre-requisite: CHE2120 OE	

Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
BIO3313 Human Physiology and Pharmacology in Disease 1**		1						Pre-requisite: BIO2203 and BIO2213
BIO2103 Biology 2^		2		2			C	Pre-requisite: BIO1101
BIO3301 Biochemistry 2**		2						Pre-requisite: BIO2201
BIO2202 Plant Physiology		2		2			C	Pre-requisite: BIO1101 OE

Footnotes

[^] Recommended for a one-year enrolment pattern.

[#] A 2-year enrolment allows studies of Chemistry in year 1 and Biochemistry in year 2.

** [BIO2201](#), [BIO3313](#) and [BIO3301](#) are offered on-campus but not externally.

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Chemistry

Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Take the following two courses:								
CHE1110 Chemistry 1^#		1		1			C	
CHE2120 Chemistry 2^#		2		2			C	Pre-requisite: CHE1110
Plus choose two from the following:								
BIO1101 Biology 1^		1		1			C	
BIO2201 Biochemistry 1**#		1						Pre-requisite: CHE2120 OE
BIO3313 Human Physiology and Pharmacology in Disease 1**		1						Pre-requisite: BIO2203 and BIO2213
PHY1104 Physics Concepts 1+^				1				
WIN1101 Grape and Wine Production^		1		1				
BIO2103 Biology 2^		2		2			C	Pre-requisite: BIO1101
BIO3301 Biochemistry 2**		2						Pre-requisite: BIO2201
BIO2202 Plant Physiology		2		2			C	Pre-requisite: BIO1101 OE
PHY1911 Physics Concepts 2+^				2				
WIN2102 Wine Composition, Stability and Analysis^		2		2				Pre-requisite: WIN1101 and CHE1110

Footnotes

[^] Recommended for a one-year enrolment pattern.

[#] A 2-year enrolment allows studies of Chemistry in year 1 and Biochemistry in year 2.

** [BIO2201](#), [BIO3313](#) and [BIO3301](#) are offered on-campus but not externally.

+ This course uses in-home practical kits. There is no residential school requirement.

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Climatology

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Choose four of the following courses							
CLI1110 Weather and Climate		1		1			
CLI3301 Climate and Environment Risk Assessment		1		1			
CLI8204 Global Environmental Systems				1			

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
CLI2201 Climate Change and Variability		2		2			
CLI3302 Adaptation to Climate Change		2		2			
CLI8205				2			

Computing

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Choose four of the following courses							
CSC1401 Foundation Programming		1		1			
CSC3407 Network Fundamentals and Routing~		1		1			
CSC2408 Software Development Tools		2		2			OE
One of the following two courses:							
CSC2406 Web Technology		2		2			Pre-requisite: CSC1401 or USQIT16 or Students must be enrolled in one of the following Programs: MPIT or MSBN
CSC2407 Introduction to Software Engineering		2		2			Pre-requisite: CSC1401 or USQIT16 or Students must be enrolled in the following Program: MPIT or GCEN or GDET or METC

Footnotes

- ~ Some schools offer information technology courses that are linked to the Cisco IT Essentials and Cisco CCNA Discovery curriculum, and [CSC3407](#) covers some of the IT skills and knowledge required. [CSC3407](#) has **no** pre-requisites, so that it can be taken in parallel with [CSC1401](#).
- OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Environment and Sustainability

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
REN1201 Environmental Studies		1		1			OE
REN2200 Ecology for Sustainability		1					
REN3301		2		2			OE
REN3302 Sustainable Resource Use		2		2			OE

Footnotes

- OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

For a one-year external enrolment, suited to secondary teachers teaching into environment and sustainability (including SOSE).

Mathematics

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Choose four of the following courses							
One of the following two courses							
MAT1500 Engineering Mathematics 1		1		1			OE
MAT1102 Algebra and Calculus I#		1		1			OE
One of the following two courses							
STA2300 Data Analysis		1, 2, 3		1, 2, 3			OE
MAT1101 Discrete Mathematics for Computing		1		1			
One of the following two courses							
MAT1502 Engineering Mathematics 2*		1, 2		1, 2			OE
MAT2100 Algebra and Calculus II#		2		2			Pre-requisite: (MAT1102 or MAT1502) or Students must be enrolled in one of the following Programs: MSBI or GCEN or GDET or METC
One of the following two courses							
CSC2409 High Performance Numerical Computing		1		1			Pre-requisite: CSC1401 and MAT1102 or Students must be enrolled in one of the following Programs: MPIT or MSBN or MSMS
MAT1200 Operations Research 1		2		2			

Footnotes

[MAT1102](#) and [MAT2100](#) give a higher level of Algebra & Calculus that are useful for teaching Maths B & C in schools. Students without an appropriate mathematics background for [MAT2100](#) should first take [MAT1102](#), and students without an appropriate background for [MAT1102](#) should first take USQ's Tertiary Preparation Program (TPP) course in mathematics.

* [MAT1502](#) is equivalent to [MAT1102](#).

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Physics

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
PHY1104 Physics Concepts 1+				1			
PHY2204 Astronomy and Astrophysics†				1			OE
PHY1911 Physics Concepts 2+				2			
PHY2206 Medical Physics+				2			

Footnotes

+ This course uses in-home practical kits. There is no residential school requirement.

† Astronomical observations for [PHY2204](#) are made remotely via Internet access to USQ's Mt Kent Observatory. Voluntary field nights will also be made available.

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Primary Teaching

Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
The courses below form the currently approved enrolment choices for a one-year fully external GCSC program for primary teachers holding a Science Scholarship. Four first level courses may be selected. Two courses must be completed each semester.								
Choose four of the following courses								
BIO1101 Biology 1		1		1			C	
CHE1110 Chemistry 1		1		1			C	
CLI1110 Weather and Climate		1		1				
PHY1104 Physics Concepts 1+				1				
REN1201 Environmental Studies		1		1				OE
CLI2201 Climate Change and Variability		2		2				
PHY1107 Astronomy 2†				2				
REN3301		2		2				OE

Footnotes

+ This course uses in-home practical kits. There is no residential school requirement.

† 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.

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Wine Technology

Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
CHE1110 Chemistry 1*		1		1			C	
CHE2120 Chemistry 2*		2		2			C	Pre-requisite: CHE1110
WIN1101 Grape and Wine Production*		1		1				
WIN2102 Wine Composition, Stability and Analysis*		2		2				Pre-requisite: WIN1101 and CHE1110
If you have already studied the equivalent chemistry subjects, you may choose two of the following depending on prior knowledge and prerequisite studies:								
WIN2201 Wine Analysis Practice		1					C	Pre-requisite: WIN2102
WIN2202 Winemaking Practice 1		1					C	Pre-requisite: WIN2102
WIN2204 Wine Biochemistry				2				Pre-requisite: BIO1101 and CHE2120 and WIN2102
WIN2206 Wine Microbiology				2				Pre-requisite: BIO1101 and WIN2102
BIO1101 Biology 1		1		1			C	
Other Bachelor of Technology (Wine) courses, subject to approval by the GCSC Program Coordinator								

Footnotes

* These courses particularly suit (1) secondary teachers in the chemical or biological sciences who wish to upgrade their knowledge of recent advances in wine science and (2) University graduates working in the wine industry. They are recommended for a one or two year program.