Graduate Diploma of Science (GDSI) - GradDipSci

CRICOS code (International applicants): 031448M

	On-campus^*#+	Distance education^#+
Semester intake:	Semester 1 (February) Semester 2 (July)	Semester 1 (February) 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 year full-time, 2 years part-time	
Program articulation:	To: Master of Science; Master of Science (Research)	

Footnotes

^ The Agricultural Science Specialisation is only available part-time in 2015 and will be available full-time from 2016.
All specialisations are available to distance education students, although some courses may also be available on-campus. Therefore, these specialisations may not be suitable for international students who wish to studyTm(Therefore, these)Tjpp3 8uTherefore, theseailaew4387 .1/BT2 wicere i(i fee

This specialisation provides graduates with knowledge of selected basic concepts and skills associated with environmental and climate science and the broad area of sustainability. The program aims to produce graduates with knowledge and skills for the integration of social, environmental and economic research within an interdisciplinary planning and policy framework and to provide capacity for the sustainable management of natural resources, businesses and communities.

Physics and Astronomy specialisation
This specialisation is designed to provide an opportunity to gain knowledge and skills in physics and astronomy and develop scientific research skills. The program provides professional development in science for those in educational or science communication careers.

Mathematics and Statistics specialisation
This specialisation aims to provide graduates with skills in key areas of mathematics or statistics that relate to the needs of their profession or industry, including teaching.

Program objectives

On completion of the program graduates will be able to:

- demonstrate an advanced understanding in their chosen specialisation
- conduct scholarly investigations into applications and methodologies in their chosen field
- communicate scientifically in manner appropriate to their discipline
- apply the specialist knowledge and skills acquired in their specialisation

Specialisation Objectives

Agricultural Science specialisation
On completion of this specialisation students will be able to:

- demonstrate an understanding of broad range of issues associated with agricultural production and agricultural science
- conduct enquiries into contemporary issues associated with agricultural production
- understand the risks of climate change and climate variability on agricultural production

Applied Data Science specialisation
On completion of this specialisation students will be able to:

- demonstrate advanced theoretical and technical knowledge of data science to a complex body of knowledge in sciences
- analyse, generate and transmit solutions to complex problems in sciences
- analyse critically and reflect on ethics and professionalism for data science

Environment and Sustainability specialisation
On completion of this specialisation students will be able to:

- understand and apply the principles and approaches of sustainability
- demonstrate an understanding of the functioning of the global climate system and global climate changes
- understand and assess the risks of climatic changes and climate variability and their influence on sustainable practices
- evaluate opportunities that may arise from environmental and climate changes
- identify and establish strong links between science, effective community engagement and sound policy to support sustainability
- demonstrate, through the breadth of their studies, an advanced understanding of issues, concepts and applications of sustainability in environment and natural resource management

Physics and Astronomy specialisation
On completion of this specialisation students will be able to:

- demonstrate a general professional understanding of the science of astronomy
- conduct scholarly enquiries into the research literature in astronomy and astrophysics

- apply scientific principles to solve problems with conceptual, observational or computational elements
- demonstrate competency in observational techniques, data analysis, and the interpretation of results

Mathematics and Statistics specialisation
On completion of this specialisation students will be able to:

- acquire specific knowledge and skills in mathematics and/or statistics which are relevant to their disciplines and careers
- apply problem solving and innovative thinking, to be able to contribute at a higher level to their professional environment
- understand the meaning and basis of fundamental mathematical and/or statistical ideas and techniques
- demonstrate the ability to model real-life scenarios in order to enable mathematical and/or statistical analysis
- demonstrate the ability to apply mathematics and/or statistics to the solution of problems in a variety of situations

Admission requirements

To be considered for entry, applicants should hold a three-year Bachelor's degree from an Australian University or equivalent.
A formal process of Accreditation of Prior Learning (APL) will be used to assess applicants without Bachelor degrees, who wish to gain entry to the program on the basis of equivalent experience or qualifications. Applicants should contact the Faculty of Health, Engineering and Sciences if they wish to be assessed for admission on this basis.

Domestic and International Applicants from a non-English speaking background are required to satisfy English language requirements.

If you do not meet the English language requirements you may apply to study a University-approved

Program structure

All specialisations within the program consist of eight units of study taken from the Recommended Enrolment Pattern section. At least four units must be at Level 8 for the Environment and Sustainability, Physics and Astronomy specialisations and at least 2 units must be Level 8 for the Mathematics and Statistics specialisations.

Agricultural Science specialisation

The program consists of 4 core courses, all available in external mode, and 4 electives that can be taken as a themed 'minor' or as independent electives.

Semester 1†^	Semester 2†^
Mandatory core courses:	
AGR8001 Food Security in the 21st Century	AGR8002 Emerging Technologies in Agriculture
CLI8001 Climate Risk+	AGR8003 Critical Issues in Agriculture+
Minor/Electives#	
Agricultural Practices Theme	
AGR2302 Agricultural Machinery	AGR2301 Agricultural Science
AGR2902 Field Practice	AGR3303 Agricultural Materials and Post-Harvest Technologies
AGR3304 Soil Science	AGR3305 Precision and Smart Technologies in Agriculture
AGR3905 Agricultural Engineering Practice	AGR4305 Agricultural Soil Mechanics
ENV2201 Land Studies	
Wine Technology Theme	
WIN1101 Grape and Wine Production	WIN2215 Wine Biochemistry and Microbiology
WIN2200 Viticultural and Winemaking Practice*	
WIN2210 Viticultural Principles and Production	Semester 3
WIN3310 Wine Sensory Analysis+*	WIN3304 Viticultural and Winemaking Practice 2
Biology Theme	
BIO1101 Biology 1*	BIO2103 Biology 2*
BIO2107 Cell and Molecular Biology 1	BIO2202 Plant Physiology*
STA2300 Data Analysis	BIO2219 Genetics
CHE1110 Chemistry 1*	STA2300 Data Analysis
SCI3302 Industry Placement#	BIO8201 Biology Foundations
	BIO3207 Cell and Molecular Biology 2
	CHE2120 Chemistry 2*
	SCI3302 Industry Placement#
Climate Theme	
CLI1110 Weather and Climate	CLI2201 Climate Change and Variability
CLI3301 Climate and Environment Risk Assessment	CLI3302 Adaptation to Climate Change

Footnotes

† This specialisation may not provide sufficient on-campus courses to be suitable to international on-campus students.

^ Students may vary their enrolment on the basis of prior studies or professional requirements with the approval of the Faculty of Health, Engineering and Sciences .

\+ This course will not be offered until 2016.

SCI3302 Industry Placement may be available within each of the themes subject to approval of the Faculty of Health, Engineering and Sciences and availability of relevant placement.

* Residential School

Applied Data Science specialisation

The Applied Data Science specialisation consists of eight courses which are all available in external mode.

$ Recommended courses for students wanting to specialise in Statistics only
* The on-campus offering of this course is offered in odd years only.

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.

Articulation

Graduate Diploma of Science students may articulate to the MSCN Master of Science coursework program with further completion of eight courses, as required by that program.
Graduate Diploma of Science students may articulate to the MSCR Master of Science (Research) program if they meet other requirements for entry into that program.
Students must advise the Faculty in writing (usq.support@usq.edu.au) of their intention to articulate and this must occur prior to graduation from the GDSI. If a student is articulating to the higher degree, they will apply to that higher degree and will only graduate from that higher degree.

Exit points

Students may exit with the Graduate Certificate of Science on successful completion of four units of study appropriate for their chosen specialisation and with the required minimum number of level 8 courses. Students should consult the Faculty of Health, Engineering and Sciences should they wish to exit to ensure they satisfy requirements for the Graduate Certificate.

Credit

Exemptions/credit will be assessed based on the USQ Credit and Exemption Procedure.

Applied Data Science specialisation:

Exemption of four units may be granted if student has completed the GCSC Graduate Certificate of Science offered by USQ.

Students who have completed STA2300 Data Analysis in their Bachelor degree may replace STA2300 with another STA level 2 or above course.

Students who have completed CSC1401 Foundation Programming in their Bachelor degree may replace CSC1401 with another CSC course.

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 Faculty of Health, Engineering and Sciences. 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 - full-time (2 Semesters, S1 entry only): full-time available from 2016

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.

Note: This specialisation is not available for International on-campus students as core courses are available in external mode only.

The recommended enrolment pattern for this major is a recommended example. Students may vary or select their own pattern, keeping in mind any course pre-requisites, timetable constraints and the requirements to graduate outlined abov

Footnotes

^ This course will not be offered until 2016.
# Selection of potential electives should be discussed with the Faculty of Health, Engineering and Sciences.
+ This course must be taken in last semester.
* Residential School
++ This course is only offered in Semester 3.

Agricultural Science Specialisation recommended enrolment pattern - part-time (4 Semesters, S1 or S2 commencement)

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.

Note: This specialisation is not available for International on-campus students as core courses are available in external mode only.

The recommended enrolment pattern for this major is a recommended example. Students may vary or select their own pattern, keeping in mind any course pre-requisites, timetable constraints and the requirements to graduate outlined above in the Program Structure. If unsure about a suitable enrolment pattern, students should contact the Faculty of Health, Engineering and Sciences.

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CSC8500 Advanced Relational	1	1	1	1			Pre-requisite: Students must be enrolled in one of the following Programs: GDTI or GCSC or MCTN

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The recommended enrolment pattern for this major is a recommended example. Students may vary or select their own pattern, keeping in mind any course pre-requisites, timetable constraints and the requirements to graduate outlined above in the Program Structure. If unsure about a suitable enrolment pattern, students should contact the Faculty of Health, Engineering and Sciences.

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PHY1101 Astronomy 1*			1	1			