GC-SCI Graduate Certificate in Science

Year and Campus:	2016
CRICOS Code:	085109F
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Level:	Graduate/Postgraduate
Duration & Credit Points:	50 credit points taken over 6 months
Coordinator:	Professor Aleks Owczarek
Contact:	**Currently enrolled students**: # General information: **https://ask.unimelb.edu.au (https://ask.unimelb.edu.au/)** # Email: **enquiries-STEM@unimelb.edu.au (mailto:enquiries-STEM@unimelb.edu.au)** **Future students**: # Further information: **graduate.science.unimelb.edu.au/graduate-certificate-science (http://graduate.science.unimelb.edu.au/graduate-certificate-science)**
Course Overview:	**This course is no longer taking new enrolments. Please see GC-SC (../../view/current/GC-SC) .** The Graduate Certificate allows students who have completed an undergraduate degree to re-focus or expand their body of knowledge by completing the requirement of one of the undergraduate majors (or equivalent) in the Bachelor of Science not already completed. The following areas of study are available: # Botany # Chemistry # Medicinal Chemistry # Computer Science # Genetics # Integrated Geography # Human Geography # Physical Geography # Geology # Pure Mathematics # Applied Mathematics # Discrete Mathematics / Operations Research # Statistics / Stochastic Processes # Physics # Zoology Students will be required to have completed level 2 prerequisites.
Learning Outcomes:	Students who complete the Graduate Certificate should: # Demonstrate an independent approach to knowledge that uses rigorous methods of inquiry and appropriate theories and methodologies that are applied with intellectual honesty and a respect for ethical values; # Apply critical and analytical skills and methods to the identification and resolution of problems; # Act as informed and critically discriminating participants within the community of scholars, as citizens and in the work force; # Communicate effectively; # Commit to continuous learning;

	# Be proficient in the use of appropriate modern technologies, such as the computer and other information technology systems, for the acquisition, processing and interpretation of data.
Course Structure & Available Subjects:	Completion of 50 points of study at Level 3.
Majors/Minors/ Specialisations	

Major/Minor/Specialisation
Botany
Chemistry
Medicinal Chemistry
Computer Science
Genetics
Integrated Geography
Human Geography
Physical Geography
Geology
Pure Mathematics
Applied Mathematics
Discrete Mathematics / Operations Research
Statistics / Stochastic Processes
Physics
Zoology

Entry Requirements:

In order to be considered for entry, applicants must have completed:

• an undergraduate degree, or equivalent; and

• at least 37.5 points of specific prerequisite subjects at level 2 or above for the stream into which entry is sought

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Meeting these requirements does not guarantee selection.

In ranking applications, the Selection Committee will consider prior academic performance.

The Selection Committee may seek further information to clarify any aspect of an application in accordance with the **Admission and Selection into Course Policy (http://policy.unimelb.edu.au/MPF1035)** .

Applicants are required to satisfy the university's **English language requirements for postgraduate courses (http://www.policy.unimelb.edu.au/schedules/MPF1035-ScheduleA.pdf)** . For those applicants seeking to meet these requirements by one of the standard tests approved by the Academic Board, performance band 6.5 is required.

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Stream Specific Subject Prerequisites

Applied Mathematics

All three of MAST20009 Vector Calculus and MAST20026 Real Analysis and MAST20030 Differential Equations, or equivalents

Botany

At least three level 2 or above Animal Science, Biology, Botany, Anatomy, Physiology, Biochemistry and Molecular Biology, Ecology, Genetics subjects, or equivalent

Chemistry

All three of CHEM20018 Reactions and Synthesis and CHEM20019 Practical Chemistry 2 and CHEM20020 Structure and Properties, or equivalents

Computer Science

COMP20003 Algorithms and Data Structures and two of COMP20004 Discrete Structures, COMP20005 Engineering Computation, COMP20006 Programming the Machine, COMP20007 Design of Algorithms or SWEN20003 Object Oriented Software Development, or equivalents plus 25 points of level 1 or above mathematics or statistics subjects, or equivalent

Discrete Mathematics / Operations Research

Both of MAST20018 Discrete Mathematics and Operations Research and MAST20026 Real Analysis plus one of MAST20004 Probability or MAST20006 Probability for Statistics, or equivalents

Genetics

Both GENE20001 Principles of Genetics and GENE20003 Experiments in Genetics and one of GENE20002 Genes and Genomes or BIOM20001 Molecular and Cellular Biomedicine, or equivalents

Geology

All three of GEOL20001 Geology of Southeast Australia, GEOL20002 Structural and Metamorphic Geology and GEOL20004 Field Mapping and Sedimentary Geology, or equivalents

Human Geography

Three of GEOG20001 Society and Environments, GEOG20003 Environmental Politics and Management, GEOG20010 China in Transition, or GEOG20008 Inside the City of Diversity, or equivalents

Integrated Geography

Three of GEOG20001 Society and Environments, GEOG20003 Environmental Politics and Management, GEOG20010 China in Transition, GEOG20008 Inside the City of Diversity, GEOG20002 Global Landforms, GEOG20009 Geography and Biodiversity of Landscapes, ENST20002 Environmental Change Field Class, ERTH20001 Dangerous Earth, EVSC20003 Forests in a Global Context, or UNIB20001 Climate Change II, or equivalents

Medicinal Chemistry

CHEM20019 Practical Chemistry 2 plus BIOM20002 Human Structure and Function or PHRM20001 Pharmacology: How Drugs Work and CHEM20018 Reactions and Synthesis Genetics, or equivalents

Physical Geography

Three of GEOG20002 Global Landforms, GEOG20009 Geography and Biodiversity of Landscapes, ENST20002 Environmental Change Field Class, ERTH20001 Dangerous Earth, EVSC20003 Forests in a Global Context, or UNIB20001 Climate Change II, or equivalents

Physics

All six of PHYC20005 Quantum Mechanics & Thermal Physics, PHYC20009 Thermal and Classical Physics, PHYC20010 Quantum Mechanics and Special Relativity, PHYC20011 Electromagnetism and Optics, MAST20009 Vector Calculus and MAST20026 Real Analysis, or equivalents

Pure Mathematics

All three of MAST20009 Vector Calculus and MAST20022 Group Theory and Linear Algebra and MAST20026 Real Analysis, or equivalents

Statistics / Stochastic Processes

	Both of MAST20005 Statistics and MAST20026 Real Analysis plus one of MAST20004 Probability or MAST20006 Probability for Statistics, or equivalents *Zoology* One of ZOOL20005 Animal Structure and Function or ZOOL20006 Comparative Animal Physiology or ECOL20003 Ecology, or equivalents plus at least two further level 2 life sciences subjects, or equivalents
Core Participation Requirements:	The Graduate Certificate in Science welcomes applications from students with disabilities. It is University and degree policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the degree. The Graduate Certificate in Science requires all students to enrol in subjects where they will require:1. the ability to comprehend complex science, technology and/or engineering systems related information;2. the ability to clearly and independently communicate a knowledge and application of science, technology and engineering systems principles and practices during assessment tasks; and in some areas of study;3. the ability to actively and safely contribute in clinical, laboratory, and fieldwork/excursion activities. Students must possess behavioural and social attributes that enable them to participate in a complex learning environment. Students are required to take responsibility for their own participation and learning. They also contribute to the learning of other students in collaborative learning environments, demonstrating interpersonal skills and an understanding of the needs of other students. Assessment may include the outcomes of tasks completed in collaboration with other students. There are additional inherent academic requirements for some disciplines and subjects, and these requirements are listed within the description of the requirements for each of these disciplines and subjects.Students who feel their disability will impact on meeting this requirement are encouraged to discuss this matter with the relevant Subject Coordinator and the Disability Liaison Unit: http://www.services.unimelb.edu.au/disability/ - Discipline# specific Core Participation Requirements ChemistryCore participation requirements: Laboratory experimentsThis discipline requires students to actively, independently and safely participate in all practical classes, utilising a range of observational, communication, motor, intellectual, and behavioural and social skills. Visual acuity, muscle coordination and balance are essential for participation. Assessment is reliant on careful observation and visual interpretation of results. BotanyCore participation requirements: Fieldwork, practicals and laboratory experimentsThis discipline requires all students to actively, independently and safely participate in all practical classes, utilising a range of observational, communication, motor, intellectual, and behavioural and social skills. Visual acuity, muscle coordination and balance are essential for participation. Details of the participation requirements can be found at http://www.vet.unimelb.edu.au/docs/CoreParticipationReqsBSc.pdfThe sites essential to this fieldwork are not wheel chair accessible and may require students to traverse broken ground. Students are also required to undertake experiments including specimen and microscope work with assessment reliant on careful observation and visual interpretation of results. Practicals may also involve handling and working with animals. Geology Core participation requirements: FieldworkThe sites essential to this fieldwork are not wheelchair accessible and require students to traverse broken ground. Visual observation and interpretation of the sites is also an essential component, as is specimen and microscope work. ZoologyCore participation requirements: Fieldwork, practicals and laboratory experimentsThis discipline requires all students to actively, independently and safely participate in all practical classes, utilising a range of observational, communication, motor, intellectual, and behavioural and social skills. Visual acuity, muscle coordination and balance are essential for participation. Details of the participation requirements can be found at http://www.vet.unimelb.edu.au/docs/CoreParticipationReqsBSc.pdfThe sites essential to this fieldwork are not wheel chair accessible and may require students to traverse broken ground. Students are also required to undertake experiments including specimen and microscope work with assessment reliant on careful observation and visual interpretation of results. Practicals may also involve handling and working with animals.
Further Study:	The Graduate Certificate provides a pathway to the Master of Science Streams.
Links to further information:	http://graduate.science.unimelb.edu.au/certificates-diplomas
Notes:	**The following streams can only be completed part-time** Applied Mathematics Botany Chemistry

	Computer Science Discrete Mathematics/Operations Research Genetics Geology Medicinal Chemistry (Mid-year Intake) Physics (Mid-year Intake) Pure Mathematics Statistics/Stochastic Processes Integrated Geography (Mid-year Intake) Human Geography Physical Geography **The following streams can be completed either full-time over 6 months or part-time** Integrated Geography (Start Year Intake) Medicinal Chemistry (Start Year Intake) Zoology Physics (Start Year Intake)