During her final year as an undergraduate Chemistry student in France, Cecile Cros knew she would have to make a choice about where and what she wanted to study in the future.

“I knew I wanted to pursue my studies but needed a change and studying overseas appeared to be the best option,” she said. Originally from New Caledonia, Cecile also had family living in Queensland and so started researching Queensland universities on the Internet.

“UQ offered the best range of courses and research environment,” she said.

“I started my postgraduate studies in the Master of Science (Chemistry) program and at the end of that program, I chose to pursue a PhD. This gave me the opportunity to discover what research was like and helped me to realise that one day the molecule I was working on could help to treat people suffering cancer or neurological diseases. My PhD project is on nasal delivery of central nervous system compounds. Our aim is to create peptide drugs using a system where drugs are delivered through the nose. This would overcome the problems of degradation of peptides in the gastro-intestinal tract but also avoid the blood-brain barrier, a tight enzymatic barrier protecting the brain.”

Cecile said the Faculty of Biological and Chemical Sciences offered a huge range of facilities compared to what she was used to in France and New Caledonia. “Everything is designed so that the students can learn and research without any difficulties. Administrative staff and lecturers are always available to help us resolve our problems and guide us,” she said.
Students not only study Science and IT at UQ, they experience it. In addition to lectures and tutorials, students participate in field trips, industry placements and research projects utilising the latest state-of-the-art facilities.

UQ Science and Information Technology degrees allow students to combine a number of interest areas. Together with dual program choices, this maximises employment opportunities.

With strengths in all areas of the biological and chemical sciences and information technology, our programs are interdisciplinary in nature and at the forefront of emerging disciplines. They provide a challenging and rewarding environment for our students while maximising employment opportunities.

UQ has one of the most comprehensive ranges of science specialisations in Australia, offering students more choices in science courses than other institutions.

Our programs are informed by research, with world-class scientists incorporating their latest discoveries into their teaching, which means you are learning as they are discovering. Hands-on experience and opportunities for field and laboratory work means you are putting your acquired knowledge to practical use.

UQ is also a hub for major science initiatives in the Asia-Pacific region for the biosciences, neuroscience, nanotechnology and biotechnology. Our location also provides unique opportunities to study environmental disciplines in a subtropical environment, with ready access to arid, temperate, tropical and marine systems including World Heritage rainforests, the Great Barrier Reef and outback Australia.

UQ’s facilities and special features include:
- a reputation as Australia’s top biological sciences research university
- Australia’s most extensive marine science teaching and research facilities, with field stations on the Great Barrier Reef (Heron Island, Low Isles) and Moreton Bay (North Stradbroke Island)
- commercial aquaculture facilities
- Australia’s most comprehensive range of electron optical instrumentation, within UQ’s Centre for Microscopy and Microanalysis
- innovative and integrated research facilities, including the Institute for Molecular Bioscience (IMB), the Australian Institute for Bioengineering and Nanotechnology (AIBN), and the Queensland Brain Institute (QBI)
- an award-winning IT research centre, the Distributed Systems Technology Centre (DSTC), with industry participants such as Boeing, Microsoft, IMB and Sun Microsystems
- specialist laboratories for studying robotics, electronics, computer systems, communications, power systems, optics, signal-processing and microwaves
- six fully-equipped multimedia studios and two dedicated Mac Video/Animation workshops with high-end dual CPU G4 machines and dual-head monitors, and
- 24-hour student access to IT facilities.

Why choose UQ for studies in Science & Information Technology?

Career opportunities in this discipline

Characterised by rapid advancements and new discoveries, careers in Science and Information Technology are exciting and fulfilling. UQ graduates in these disciplines are in high demand by a broad range of private and public sector employers, in areas including:
- aquaculture, architecture, banking, biotechnology, chemical industries, commerce, commercialisation, computer programming, conservation, diagnostics, economics, ecotourism, education and research, engineering, environmental consulting, fisheries, food and agriculture, forensic science, healthcare and insurance, intellectual property management, interaction design, law enforcement, media and publishing, mining and manufacturing, multimedia/Web design, museums, national parks, natural resources, patent law, pathology, pharmaceuticals, planning and consulting, quarantine, software consulting, sports industry, surveying systems development, systems support, teaching, sales and marketing, textiles, usability consulting and video games modelling.

Programs in this discipline
- Biotechnology
- Entomology
- Food Studies
- Geographic Information Science
- Information Technology
- Interaction Design
- Molecular Biology
- Science

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- Biotechnology
- Entomology
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- Science
DOCTOR OF BIOTECHNOLOGY

Location: St Lucia
Commencement semesters: 1, 2
Application closing dates: Refer to page 109

Students may also undertake a research higher degree in this discipline.

Eligibility for visa
Unless otherwise specified, international students must undertake programs on campus at UQ on a full-time basis to be eligible to apply for an Australian student visa. See page 109 for more information.

Program outline
The Doctor of Biotechnology program is designed to train scientists in the application of principles of management, to develop an understanding of management issues for research enterprises and technology ventures and the integration of specialist training in the area of biotechnology and research. Students in the doctorate will undertake courses at an advanced level in areas such as regulatory and legal issues, innovation, as well as biotechnology venture management. In addition, a large self-directed study component and a thesis component are included to explore and develop academic areas of interest.

Career opportunities
Positions in a management role in biotechnology companies and in government institutions.

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GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF BIOTECHNOLOGY

Location: St Lucia
Commencement semesters: 1, 2
Application closing dates: Refer to page 109

Students may also undertake a research higher degree in this discipline.

Eligibility for visa
Unless otherwise specified, international students must undertake programs on campus at UQ on a full-time basis to be eligible to apply for an Australian student visa. See page 109 for more information.

Program outline
The biotechnology programs emphasise an understanding of the development of skills, knowledge and understanding relevant to biotechnology research in the biotechnology industry; and the opportunity to undertake a major research project in an area relevant to biotechnology. Graduates possess an understanding of a broad range of modern biotechnologies; the commercialisation of products and marketing; the business environment, including business planning and project management; and how research and development are undertaken in industry settings.

Career opportunities
Most graduates will work with insects and arachnids important in human affairs and be employed by institutions such as Commonwealth Scientific and Industrial Research Organisation (CSIRO), Queensland State Department of Agriculture, Health, Environment, Conservation and Land Management, and Quarantine. Urban pest control companies, manufacturers of agricultural and veterinary insecticides and biological control companies also employ entomologists. Graduates find employment in schools, universities and museums as teachers, researchers and technicians, in larger...
urban pest control companies in advisory and training positions, as advisers in pest control in agricultural and veterinary settings and in environmental impact studies using insects as bio-indicators.

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Career opportunities
Graduates find employment as: food technologists, food scientists, laboratory managers, food product development scientists, quality control managers, technical sales personnel, food production managers, nutrition advisors, or community health educators.

Professional memberships
Graduates of this degree may be eligible for membership with the Australian Institute of Food Science and Technology.

Program outline
The postgraduate programs in geographic information science produce high-quality graduates with both technical and research skills in advanced areas of geographic information science. Graduates are competent in basic and advanced computing skills especially in geographic information systems (GIS) software; various GIS and remote sensing operations; and implementation and management of GIS projects. The program also covers applications of GIS and remote sensing technologies to various areas; resource analysis through remote sensing and aerial photo interpretation; expert systems and decision support systems; and research, both applied and theoretical, in the field of spatial information systems.

Supplementary information
Some courses are also offered in external mode, allowing students to complete the programs in external mode. Courses offered in the external mode may have residential school requirements. It is an expectation that students will have private access to a computer and the internet. An internal student attends lectures, tutorials and practicals on campus. An external student receives instruction by mail, or via the internet.

For English language proficiency requirements, please refer to page 107.

Additional program information is provided in the tables on pages 100-104.
### Career opportunities

Graduates will have completed an industrial-scale system from initial specification through design, implementation and documentation and will have skills software engineering, information systems, discrete mathematics, basic operating systems, networking, relational databases, advanced databases, ontology and the semantic web, web information systems and service-oriented architectures. Depending on their area of expertise, many of our graduates will have specialist knowledge in human-computer interaction, algorithms and data structures, networking, information security, artificial intelligence, and artificial minds. Graduates are employed in areas as diverse as electronic commerce, information systems, technology management, computer science, health informatics, geographical information systems, and biotechnology.

### Professional memberships

Graduates of this degree may be eligible for membership with the Australian Computer Society.

### Additional cost

There are no charges levied by the program, but students would be required to purchase (from a third source) materials and equipment. Students must also pay for printing if performed on campus.

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### GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Interaction Design

**Location** St Lucia  
**Commencement semesters** 1, 2  
**Application closing dates** Refer to page 109  
**Students may also undertake a research higher degree in this discipline**  
**Additional program information is provided in the tables on pages 100-104**  
For English language proficiency requirements, please refer to page 107

**Graduate Certificate**  
**Duration** 0.5 years full-time  
**Admission requirements** Bachelor degree in a field other than interaction design. Applications on the basis of post-secondary study and two years work experience in a related field will be individually assessed

**Graduate Diploma**  
**Duration** 1 year full-time  
**Admission requirements** Bachelor degree in a field other than interaction design OR graduate certificate in interaction design. Applications on the basis of post-secondary study and two years work experience in a related field will be individually assessed

**Coursework Master**  
**Duration** 1.5 years full-time  
**Admission requirements** Bachelor degree in a field other than interaction design or information environments OR Graduate Diploma in Interaction Design

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### Program outline

In the past, computer work was a profession for specialists. Today, and even more so in the future, interaction with electronic devices is a major part of our daily lives. From early childhood onwards we are exposed to networks, telecommunications and computer-based technology, therefore the focus of systems design and design in technology consequently is destined to change. These programs train students to understand and solve usability problems.

### Career opportunities

Both in Australia and overseas, career opportunities for graduates are excellent, as demand in the interaction design area continues to grow. The programs in interaction design provide the opportunity for graduates to understand and solve usability problems as well as acquire the diverse skills required to make the dialog between technology and people easier and more human. This will enable graduates to work in cross-discipline areas and apply their skills to any specialist discipline area. Graduates will find employment in industry, business, government, defence, health, education, media and other areas.

### Professional memberships

Graduates of this degree may be eligible for membership with the Australian Computer Society.

### Additional cost

There are no additional charges levied on this program, but students may need to purchase materials, computing equipment and printing.

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### DOCTOR OF Science

**Location** St Lucia  
**Commencement semesters** 1, 2  
**Application closing dates** Refer to page 109  
**Additional program information is provided in the tables on pages 100-104**  
For English language proficiency requirements, please refer to page 107

**Higher Doctorate**  
**Duration** 1 year full-time  
**Admission requirements** A Bachelor of Science or equivalent of this University completed at least seven years ago plus adequate scientific training OR an equivalent degree from another university completed at least seven years ago plus adequate scientific training and relevant work experience. Non University of Queensland graduates must demonstrate to the Doctor of Science Committee a satisfactory connection with this University

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### GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Molecular Biology

**Location** St Lucia  
**Commencement semesters** 1, 2  
**Application closing dates** Refer to page 109  
**Additional program information is provided in the tables on pages 100-104**  
For English language proficiency requirements, please refer to page 107

**Graduate Certificate**  
**Duration** 0.5 years full-time  
**Admission requirements** Bachelor degree in science or equivalent OR post-secondary study or work experience in a related field

**Graduate Diploma**  
**Duration** 1 year full-time  
**Admission requirements** Bachelor degree in science or equivalent OR post-secondary study or work experience in a related field OR Graduate Certificate in Molecular Biology

**Coursework Master**  
**Duration** 1.5 years full-time  
**Admission requirements** For the #24 program: An honours degree in a science related field OR Bachelor degree in related discipline and at least 2 years approved work experience or research publications OR Graduate Diploma in Molecular Biology. For the #16 program, a Bachelor of Science with Class I or IIA Honours in molecular biology or equivalent

**Program outline**  
Molecular biology is the study of the structure and function of genes and the proteins they encode, including extraordinarily rapid advances in genome sequencing, recombinant DNA technology and macromolecular structure determination. This program provides advanced theoretical and practical training in molecular biology through lectures, workshops, extended projects and directed study. Students gain training in research methodology in molecular biology and have the opportunity to undertake major individual research.

### Career opportunities

Graduates have a wide range of opportunities available. These include employment in pathology and hospital laboratories through to the food, biotechnology and pharmaceutical industries, as well as government departments and research laboratories, and the higher education sector.

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Conservation biology is an integrative discipline that focuses on the problems of restoring and maintaining viable populations of animal and plant species, and natural and managed ecosystems. The program aims to provide core theoretical and practical training in conservation biology. Graduates with little preliminary training in conservation biology can access within the program, courses that provide prerequisite knowledge. Flexible delivery courses are designed to suit those at remote locations and/or in full-time employment. The program examines all modern materials (metals, polymers, and ceramics and biomaterials) and their properties, equipping graduates with skills and knowledge suitable for research or a wide range of exciting careers in the materials area.

Mathematics

This program equips and students to undertake advanced courses in mathematics and its applications. Special topics courses enable students to build the necessary background and techniques in pure or applied areas. Advanced level courses introduce students to recent developments in a broad range of modern mathematics, including analysis; algebra and combinatorics; applied mathematics; computational mathematics; and statistics and probability. Students study modern applications of mathematics across areas such as coding and cryptography; bioinformatics; mathematical physics; mathematical biology; operations research; and quantum computation and visualisation; nonlinear differential equations; and financial mathematics. Students develop mathematical research techniques through projects that provide the opportunity to work in any of the research centres associated with the mathematics department.

Physics

Physics generates fundamental knowledge needed for future technological advances that will continue to drive the economic engines of the world. Physics plays a pivotal role in the education of and support for other disciplines, including agriculture, biology, chemistry, engineering and medicine. It also leads to careers in astrophysics and cosmology, geophysics, laser science and photonics, condensed matter physics and theoretical physics. The postgraduate coursework programs in physics are designed for students who have substantial background at the undergraduate level and offers the opportunity to carry out research projects with nationally and internationally recognised staff in various research centres such as the Centre for Biophotonics and Laser Science, the Centres of Excellence for Quantum Computer Technology and Quantum-Atom Optics, the Centre for Hypersonics and the Centre for Mathematical Physics.

Statistics

Statistics is the scientific application of mathematical principles to the design, collection, analysis, and presentation of numerical data. Statisticians contribute to scientific inquiry by applying their mathematical knowledge to the design of surveys and experiments; collection, processing, and analysis of data; and interpretation of the results. Statistical methods can be applied to a variety of areas, including biology, economics, engineering, medicine, public health, psychology, marketing, education, and sports. Theoretical and practical courses offer students experience in the use of popular statistical and data analysis packages. The program covers all areas of modern statistics and equips graduates with the skills and knowledge necessary to embark on a career as a professional statistician. Major areas of study are applied and theoretical statistics and probability theory.

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