

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 I 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.

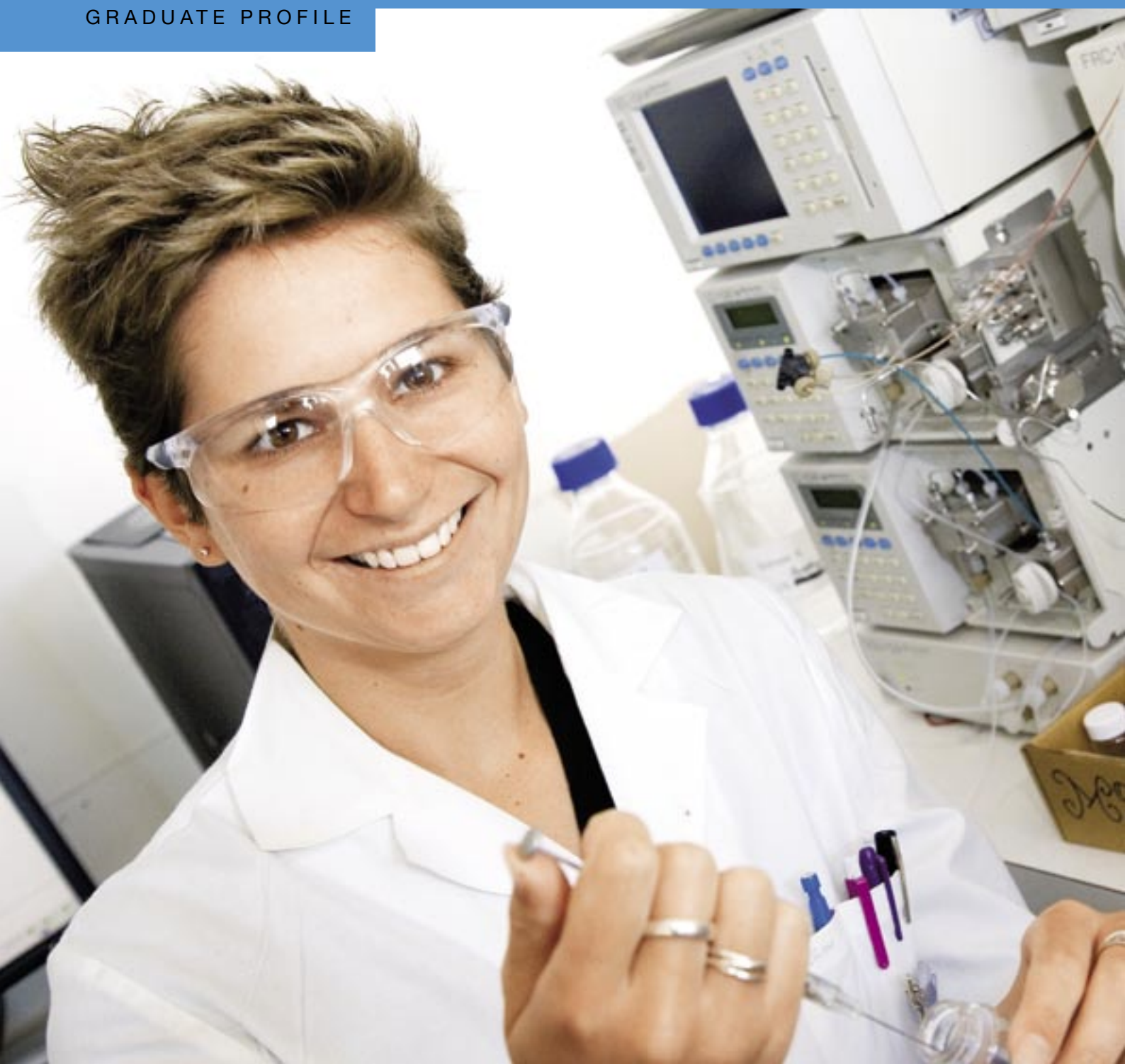
"My PhD project is on nasal delivery of central nervous system compounds. Our aim is to create peptide drugs using a system where drugs are delivered through the nose. This would overcome the problems of degradation of peptides in the gastro-intestinal tract but also

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.

GRADUATE PROFILE



SCIENCE & INFORMATION TECHNOLOGY

Programs in this discipline

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Why choose UQ for studies in Science & Information Technology?

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.

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.

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.

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

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 2.5 years full-time

Admission requirements Bachelor of Science or Bachelor of Biotechnology with class I or IIA honours from UQ or equivalent degree OR coursework masters degree with approved results in the research component of the degree and GPA of at least 5 OR at least 2 years relevant professional experience and/or research publications. All potential candidates are interviewed as part of the selection process

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.

Contact details

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GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF MASTER (ADVANCED) 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

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 of Biotechnology or Bachelor of Science in a biotechnology related field or equivalent degree

Graduate Diploma

Duration 1 year full-time

Admission requirements Bachelor of Biotechnology or Bachelor of Science in a biotechnology related field or equivalent degree OR Graduate Certificate in Biotechnology

Coursework Master

Duration 1.5 years full-time (#24); a one-year program (#16) is available to qualified applicants

Admission requirements For the #24 program: An honours degree in science/biotechnology/ related area OR Graduate Certificate in Biotechnology OR Graduate Diploma in Biotechnology OR Bachelor degree in a related discipline with at least 2 years' approved work experience or research publications. For the #16 program: 4-year Bachelor of Biotechnology (Honours) or Bachelor of Science (Honours) with Class I or IIA in a field of biotechnology directly relevant to the proposed program of study

Coursework Master (Advanced)

Duration 2 years (#32) full-time; a 1.5 year (#24) program is available to qualified applicants

Admission requirements For the #32 program: an honours degree in science/biotechnology/ relevant area OR a Graduate Certificate in Biotechnology OR Graduate Diploma in Biotechnology, OR a bachelor degree in related discipline with at least 2 years' approved work experience or research publications. For the #24 program: a 4-year Bachelor of Biotechnology (Honours) OR a 4-year Bachelor of Science (Honours) with Class I or IIA in a field of biotechnology directly relevant to the proposed program of study, OR an equivalent degree of at least 4 years' duration

Program outline

There is currently a tremendous growth in the international biotechnology industry and allied service sector. Research and development managers require scientists with core technical skills, knowledge of commercial imperatives and current regulatory environments. This program is designed for scientists who want to update their technical skills in core areas such as molecular biology, protein technology or bioinformatics, or who wish to acquire research laboratory experience. The programs also suit legal or business professionals with some scientific background who want to learn about the latest technological developments. This program provides comprehensive training in scientific disciplines underpinning the biotechnology industry and research through advanced lectures, projects and directed study. Students gain an introduction to research methodology; training in the special requirements for undertaking 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.

The biotechnology programs emphasise the development of skills, knowledge and understanding relevant to biotechnology research and the biotechnology industry and provides: a knowledge of a broad range of modern biotechnologies; an appreciation of the business environment, including business planning and project management; and commercialisation of products and marketing.

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 Entomology

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 science or approved equivalent OR post-secondary study or work experience in a relevant area

Graduate Diploma

Duration 1 year full-time

Admission requirements Bachelor degree in science or equivalent OR post-secondary study or work experience in a relevant area OR Graduate Certificate in Entomology

Coursework Master

Duration 1.5 years (#24) full-time; a one-year program (#16) is available to qualified applicants.

Admission requirements For the #24 program, a bachelor degree in science or equivalent OR Graduate Certificate in Entomology OR Graduate Diploma in Entomology. For the #16 program: a 4 year science degree or equivalent

Program outline

Postgraduate studies in entomology provide advanced entomological training through advanced lectures, practical work, projects and directed study to meet a variety of career and educational needs. It also allows students to shift careers into entomology, or upgrade skills for professional training and development. Students develop technical and problem solving skills and are introduced to research methodology. The program has access to one of Australia's largest insect and mite collections, as well as modern facilities supporting digital imaging, computer interactive diagnostics, molecular techniques, modelling, and the study of insect mating, host seeking behaviour and field ecology.

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 Departments 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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GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Food Studies

Location St Lucia Campus

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 A bachelor degree in food studies or a related field OR post-secondary study and 2 years work experience in a related field

Graduate Diploma

Duration 1 year full-time

Admission requirements A bachelor degree in food studies or related field OR relevant post-secondary study and work experience OR the Graduate Certificate in Food Studies

Coursework Master

Duration 1.5 years full-time (#24); a one-year program (#16) is available to qualified applicants.
Admission requirements For the #24 program: a bachelor degree in food studies or related field OR the Graduate Diploma in Food Studies. For the #16 program: a four year food studies degree or equivalent

Program outline

The food studies program provides postgraduate opportunities to build on specific knowledge of the sciences and technologies related to commercial food-processing and/or human nutrition. Students select from a range of courses to meet individual needs and specialisation preferences, and also undertake a research project within the broad areas of food industry, food science, technology and engineering, or nutrition. Graduates of the program demonstrate specialised knowledge of selected fields of food-processing. They can integrate and apply knowledge from a range of sources to technical issues; and effectively locate, interpret, critically evaluate, synthesise and communicate information in selected fields.

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.

Career opportunities

Graduates find employment as: food technologists, food scientists, laboratory managers, food product development scientists, quality control managers, technical sales persons, 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.

Contact details

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GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Geographic Information Science

Location St Lucia

Commencement semester 1

Application closing date 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. 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 OR Graduate Certificate in Geographic Information Science. 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 OR Graduate Diploma in Geographic Information Science

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 airphoto interpretation; expert systems and decision support systems; and research, both applied and theoretical, in the field of spatial information systems.

Supplementary information

The majority of courses are offered late afternoon/early evening.

Career opportunities

Graduates of this program are professionally qualified in the field of geographic information science and can apply the techniques of management and analysis of geographic information to a range of discipline areas, which can lead to careers in local, state and federal governments, semi-government agencies, private industry and research institutions.

Professional memberships

Graduates of this degree may be eligible for membership with: Spatial Sciences Institute.

Additional cost

Some courses (eg, field trips) may incur additional costs.

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GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Information Technology

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 information technology. 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 information technology OR Graduate Certificate in Information Technology. 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 information technology OR Graduate Diploma in Information Technology

Program outline

The information technology programs have a strong focus on information systems and database technology. These systems are used and help run organisations of all kinds. About half of the information technology industry in Australia is in this area, and those people who intend to use the programs to leverage their previous skills will use information systems and database technology within their own industries. These programs are an ideal choice for a student who does not have a previous IT degree and wishes to enhance their current discipline areas through specialist IT knowledge.

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

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 connected 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 across-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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GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Molecular Biology

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 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 (#24); a one-year

program (#16) is available to qualified applicants

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.

Contact details

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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

Program outline

A student is required to submit published material which must constitute an original and important contribution to scientific knowledge.

Contact details

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GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Science

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 of Science in a related field or equivalent degree

Graduate Diploma

Duration 1 year full-time

Admission requirements Bachelor of Science in a related field or equivalent degree OR Graduate Certificate in Science

Coursework Master

Duration 1.5 years full-time (#24); a one-year program (#16) is available to qualified applicants

Admission requirements For the #24 program: a 3 year bachelor degree OR Graduate Diploma in Science. For the #16 program: a 4 year bachelor degree

Program outline

This program provides advanced theoretical and practical knowledge in a range of specialised scientific fields, through lectures, workshops, projects and directed study. Students can develop understanding of specialised fields in which they have little previous knowledge, or extend their previous expertise.

Fields of study (BACS Faculty)

Chemical Education (*Graduate Certificate only*)

This field of study provides courses in new and emerging areas of chemistry relevant to the teaching of chemistry in context. This enables teachers to acquire new knowledge in chemistry and also work collaboratively with teachers and scientists to develop school work programs based on the new content.

Chemistry

Currently there is a shortage of chemists worldwide. Graduates with qualifications in chemistry have a wide range of employment opportunities. The postgraduate coursework program specialising in chemistry encompasses the full breadth and depth of the discipline with academic staff that are at the forefront of the discipline nationally and internationally and will suit those who aspire to, or are currently working in industry, government or education. The chemistry program is designed for students who have studied some chemistry at an undergraduate level and offers students the opportunity to complete small research projects and gain experience in a research environment.

Conservation Biology

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 tertiary 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.

Human Movement Science (*Graduate Certificate, Graduate Diploma only*)

This field of study may be used by graduates from degrees not directly comparable to either a Bachelor of Science (in the field of human movement science) or the Bachelor of Applied Science (Human Movement Studies) from The University of Queensland for the purpose of gaining a research grounding for entering either the MPhil or PhD program in human movement studies. Alternatively the Graduate Diploma may be taken by students from other degrees seeking to gain advanced knowledge in one or more of the specialised scientific sub-disciplines of human movement studies (eg, exercise physiology/biochemistry, biomechanics, motor control, sport and exercise psychology).

Fields of study (EPSA Faculty)

Computer Science

Computer science is designed for students with a background in information technology or related fields (computer science, computer engineering). The programs aim to further professional development of graduates, prepare them for the challenges of rapidly advancing IT technologies and to provide industry with highly skilled IT professionals. They are ideal for upgrading qualifications in a specific area and deepening knowledge and skills, and can help meet membership requirements for professional associations, such as the Australian Computer Society. The program offers a wide choice of courses which allow specialisation in a variety of areas: information systems, software engineering, computer systems (design and programming of Internet services, computer networks, distributed computing), multimedia, cognitive science.

Financial Mathematics

The program caters for students who need to study the advanced techniques used in financial mathematics and risk management. It aims to attract graduates with some background in undergraduate mathematics. Its flexible structure allows students to develop the required background in mathematics and finance, and to take research level courses and project work in financial mathematics and its applications.

Materials Science

Students apply their knowledge of the physical sciences to selecting, processing, understanding, controlling, developing and improving the properties of metals, ceramics and polymers for manufacture and in the performance of machines, products and structures. This is achieved by controlling the microstructure of materials and the fabrication and shaping processes used to make specific components. Recent major technological developments have extended opportunities in product areas, in light-weight materials (magnesium and aluminium); composites; high temperature materials; surface treatments; and materials with special mechanical, electrical, optical and magnetic properties. Modern advances in medical science, such as tissue growth for replacement organs and new prosthetic devices, also require developments in materials technology. Courses focus on the link between the processing of materials and their properties, with emphasis on microstructures (the atomic arrangements

within materials, the behaviour of materials, and how they are processed). 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 enables 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 cover modern applications of mathematics in areas such as coding and cryptology; bioinformatics; mathematical physics; mathematical ecology; computational science and visualisation; nonlinear differential equations; and financial mathematics. Students develop mathematical research techniques through projects that provide the opportunity to work within 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 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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