Advanced Science
Agribusiness
Agricultural Science
Biomedical Science
Biotechnology
Environmental Management
Environmental Science
Equine Science
Food Technology
Mathematics
Occupational Health and Safety Science
Regional and Town Planning
Science
Sustainable Agriculture
Veterinary Science
Veterinary Technology
Wildlife Science

SCIENCE

2018
UNDERGRADUATE
TOP REASONS TO CHOOSE UQ

SUCCESSFUL GRADUATES
Higher than national averages for full-time graduate employment rates

GREAT EXPERIENCES
Long- and short-term overseas study exchange, vacation research programs and more

GLOBAL CONNECTIONS
Extensive graduate network, strong industry partnerships and many notable alumni
TOP REASONS TO CHOOSE UQ

**ACCESSIBLE LOCATIONS**
Three easy-to-access campuses – catch public transport, ride, walk or drive

**EXCELLENT TEACHERS**
More national teaching awards than any other Australian university*

**VIBRANT LIFESTYLE**
Dynamic sports and cultural activities, 200+ clubs and societies

**LEADING RESEARCH**
Global research powerhouse with all fields at or above world standard**

**WORLD-CLASS FACILITIES**
Continuously improving teaching, learning, sporting and research spaces

**HIGH-QUALITY PROGRAMS**
Most comprehensive range of programs in Queensland

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* As at December 2016, UQ has received 122 Australian Awards for University Teaching
** 2015 Excellence in Research for Australia (ERA) assessment
WHY STUDY SCIENCE AT UQ?

Ranked in the world’s top 50 universities*, UQ offers you one of the widest choices of science disciplines in Australia. Experience innovative programs taught by world-class academics who will equip you with the skills and knowledge you will need to address today’s global scientific challenges.

Largest choice of science disciplines
UQ Science offers you a huge diversity of disciplines, encompassing pathways to traditional science careers, and incorporating broader options for careers in areas such as agriculture, biomedical science, veterinary science, planning, the environment and food technology, to name a few.

You will find employment in these sectors, which are among the largest employers of scientists, technologists, business managers, consultants and other professionals, both here in Australia and overseas.

Great career outcomes
As a UQ Science graduate, your comprehensive, up-to-date knowledge and practical skills will equip you to undertake key roles in solving the challenges facing our world today. You can anticipate high employability rates and attractive starting salaries because of your skills and expertise. You will also have access to other UQ graduates through a strong, global network of Science alumni.

Exceptional learning opportunities
As a UQ Science student, you will get to choose from relevant and innovative programs focused on meeting global challenges and creating change. You will be exposed to exceptional learning experiences and the best teachers, with more national teaching awards than any other university in the country.

You will also access premier student social and learning facilities, and the greatest number of science-based teaching and research spaces in Queensland.

If you are a high-achieving student, the Advanced Study Program in Science (ASPinS) is an opportunity for you to gain valuable insight into scientific research as a potential career by engaging with creative thinkers across many disciplines. ASPinS will inspire you to take what you learn in the classroom and put it into practice in a dynamic learning environment. This is a unique opportunity open to Science students in a range of programs. To find out more, visit science.uq.edu.au/aspins-program

Practical experience
You will benefit from interacting with industry representatives, undertaking professional placements or internships, participating in the Summer Research Scholarships program with award-winning UQ researchers, and integrating industry-based training and real-life projects into your theoretical studies.

Your program may incorporate a year of research-intensive study called ‘honours’, or you may choose to complete honours as an additional component to gain valuable project management and research skills.

Your practical experience will open your world to a diverse range of careers that will allow you to work on issues such as climate change, biosecurity, feeding the global population, sustainable energy, disease eradication and the management of diminishing natural resources.

You may even choose to study overseas at one of UQ’s 140 international partner organisations to add a global perspective to your employment options.

Embark on a journey with us and discover what makes UQ different and what a difference UQ can make to your future.
UQ FAST FACTS

**NUMBER 1**
in Agriculture in Australia*

**NUMBER 1**
in Environmental Sciences in Australia**

**NUMBER 7**
in Agriculture worldwide*

**NUMBER 12**
in Environmental Sciences worldwide**

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- Where to live  
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YOUR SCHOLARSHIP OPTIONS

Make your university experience easier and more affordable with the support of a scholarship.

You may not think you’re eligible for a scholarship, but with many, many different opportunities available, you should definitely take some time to explore your options and apply.

When you’re reading this, you’re probably completely preoccupied thinking about exams, the formal, graduation, and schoolies; however, spare a few moments as early as possible in 2017 to plan your application for a UQ scholarship, and make your university experience even more enriching.

You might be surprised at how many scholarships you are eligible to apply for!

Get in early
Scholarship applications close at different times throughout 2017 — plan your response and apply early so you don’t miss out!

150+ science scholarships available
UQ’s generous industry partners’ and private donors’ contributions bring you a range of domestic and international science scholarships for many and varied criteria.
To explore what’s on offer, visit science.uq.edu.au/scholarships

Some of UQ’s many other scholarships include:

ACADEMIC
UQ’s Academic Scholarship Program supports the continued achievements of outstanding school leavers.
If you are a high-achieving student and are completing Year 12 in 2017 (or you completed Year 12 in 2016 and are on a gap year), you are encouraged to apply.
For detailed and up-to-date information about academic scholarships, visit scholarships.uq.edu.au

EQUITY
UQ strongly supports equitable access to education for students who might not otherwise be able to attend university.
We offer many scholarships to provide opportunities for such students.
For detailed and up-to-date information about equity scholarships, visit scholarships.uq.edu.au

SPORTING
UQ Sporting Scholarships are awarded to outstanding new and continuing students who are both academically gifted and have demonstrated exceptional ability in their chosen sport.
For detailed and up-to-date information about sporting scholarships, visit uqsport.com.au/uq-sporting-scholarships

JAMIE HILE
Bachelor of Advanced Science (Honours) student
UQ Vice-Chancellor’s Scholarship 2016 recipient

I had a fantastic teacher at school who always made a point of telling us to apply for anything we felt we wanted, regardless of how out of reach it seemed. The VC Scholarship certainly seemed out of reach, but I’m so glad I followed her advice. The support it has offered by alleviating much of my financial stress has been invaluable in allowing me to invest my time and energy in completing my degree to the very best of my ability. I know that the opportunity of studying at a world-class institution for free has opened up an abundance of pathways that I would otherwise not have even noticed.
YOUR ADVANTAGE

Enhance your employability through experiences

The UQ Advantage Employability Award is a free program designed specifically to bring out the best in you during your undergraduate studies. Participants can access a range of extra-curricular activities and professional development seminars, including a unique symposium series. By participating in the program, you will enjoy experiences that will help you realise your aspirations, become a leader in your chosen field, make a positive impact on society, and enhance your employability. After completing all program requirements, you will reflect on your experiences and be able to effectively communicate your enhanced employability in the recruitment process.

You can apply for a formal certificate when you graduate that recognises the enhanced experience and skill set you have developed during your time at UQ.

ELLA WHERRITT
Bachelor of Science, Award Graduate 2016

The experiences I’ve had through the UQ Advantage Award have been incredibly rewarding, and have made my time as an undergraduate much more enjoyable and meaningful. I am more adaptable, confident and inspired because of my experiences, and I hope I can encourage others to seize similar opportunities. I would strongly encourage others to participate in the program as it provides many exciting opportunities for students to extend themselves academically, socially and culturally. University life is not just about getting a degree, as experiences outside the classroom are just as important.

Financial support

A UQ Advantage Employability Grant could help you realise your dreams. Grants worth up to $1000 are awarded for co-curricular activities such as internships, volunteering, research, leadership programs and conference participation.

Find out more by visiting employability.uq.edu.au/financial-support/uq-advantage-employability-grant

Above: Edward Zhou, a Bachelor of Science student, studied a semester at the University of Edinburgh on exchange, as part of the UQ Advantage Employability Award program

UQ Advantage Employability Award
W: employability.uq.edu.au/advantage-award

Gain a COMPETITIVE EDGE with employers
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Why Advanced Science at UQ?

Use this program to create the foundation for a high-achieving career in science research and industry through:

• accessing research labs and scientists – even during your first year of study
• participating in weekly Careers in Science research seminars
• attending a camp in your first year, run by senior Advanced Science students
• working on an independent research project in a research group of your choice during your second or third year
• developing friendships and networks with other high-achieving students
• developing your critical thinking, writing and communication skills essential for a research or industry career.

What you will study

Choose to focus on biology, biomedical science, chemistry, geographical sciences, geological sciences, mathematics or physics as your specialised area of interest. Building on existing courses within UQ’s Bachelor of Science program, you will undertake additional advanced content and core research courses that will lead you into your final honours research year. As part of the preparation for your career in research or industry, you will interact and work alongside researchers in every year of your program. From your first year, be immersed in your chosen discipline and follow a well-defined pathway of advanced-level courses driven by research inquiry.

Majors

Biology

Study life processes and the structure, function, growth, evolution and distribution of living organisms. As a biologist, you will play a major role in solving the growing number of issues facing our planet in areas as diverse as agriculture, health and medicine, and the management of sensitive environments.

Biomedical Science

Commence your studies with a broad focus on the human body at the molecular, cellular and at whole body levels. In the third year, choose to study specialised areas including physiology, pharmacology, anatomy, developmental biology, human genetics, neuroscience, human immunology and infectious diseases. Select this major if you are considering a career in fundamental or clinical research.

Chemistry

Explore the structures and properties of molecules and materials, and develop new ways to use them. You will learn the mechanisms of reactions and processes that occur at the molecular level, and the chemical principles underpinning disciplines such as biochemistry, engineering, food science, materials science, nanotechnology and medicine.

Geographical Sciences

Study the spatial patterns and interactions of physical and human phenomena at local, national and global scales, and how they change over time. Select your courses in areas such as environmental systems and Earth system science (physical geography), human geography and spatial information science.

Geological Sciences

Examine the interactive system of the solid Earth, atmosphere, hydrosphere
CATHERINE BOWLER
Bachelor of Advanced Science student

I chose to study at UQ because it is a top-tier university, with excellent facilities and a strong research focus. I have had so many awesome field trip opportunities around Queensland and have been able to interact with leading academics in their field, thanks to the research focus of the Bachelor of Advanced Science.

and biosphere over very long and very short timescales. Your courses will include hands-on mineral and rock analysis and practical field mapping as well as more advanced geophysics, geochemistry and subsurface modelling courses.

Mathematics
Access an extensive range of advanced mathematics courses and gain a deep understanding of the foundations and applications of mathematics to prepare you for research within and beyond this degree. Relevant across a range of disciplines, mathematical knowledge can be combined with modelling and computational skills. Using the latest computer technology, you will solve problems in the physical and biological sciences, engineering, information technology, economics and business.

Physics
Study the most basic natural laws, and discover how and why things work on scales ranging from the sub-nuclear through to the everyday, and on to the entire cosmos. Explore the basic principles governing the structure and behaviour of matter, the generation and transfer of energy, and the interaction of matter and energy, and use these principles in your theoretical, experimental or applied research.

Minors
Study a minor to gain knowledge in an additional area. Choose from the following:
- Animal and Veterinary Biosciences
- Archaeological Science
- Biochemistry and Molecular Bioscience
- Bioinformatics
- Biomedical Science
- Biophysics
- Chemistry
- Computational Science
- Computer Science

- Ecology
- Food Science
- Genetics
- Geographical Sciences
- Geological Sciences
- Marine Science
- Mathematics
- Microbiology
- Physics
- Plant Science
- Psychology
- Public Health
- Statistics
- Zoology

Placements and practical experience
You will complete an extensive research project in the fourth year of your program, working closely with an academic supervisor to gain in-depth skills to progress to a PhD for a research career, or to gain problem-solving techniques in demand in the corporate sector. Depending on your major, you will also have the opportunity to participate in numerous field trips to a variety of locations including the Great Barrier Reef, Mt Isa and Western Queensland.

Careers
You will find expanding career possibilities in diverse roles within:
- research organisations
- government agencies
- industrial organisations
- universities
- hospitals and the healthcare system
- marine preservation authorities
- secondary schools (with further study)
- environmental organisations including planning and site assessment
- operations research and logistics consultancies and corporations
- financial enterprises.

Advanced Science is also an excellent pathway into medicine or a research higher degree such as a PhD.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. See page 64 for more information.

For more information
future-students.uq.edu.au
science.uq.edu.au/planner

SAMPLE COURSES

Biology
- Advanced Biochemistry and Molecular Biology
- Advanced Bioinformatics

Biomedical Science
- Advanced Genetics
- Integrative Cell and Tissue Biology
- Principles of Biomedical Research

Chemistry
- Advanced Organic Chemistry
- Advanced Physical Chemistry
- Nanoscience: Synthesis

Geographical Sciences
- Advanced Earth Observation Sciences
- Environment and Society
- Global Population Issues

Geological Sciences
- Advanced Structural Geology
- Ore Deposits and Exploration Geology
- Tectonics and Crustal Evolution

Mathematics
- Advanced Calculus and Linear Algebra
- Mathematics Honours Research Project
- Methods and Models of Applied Mathematics

Physics
- Advanced Experimental Skills
- Advanced Physics Research Project
- Advanced Quantum Theory

future-students.uq.edu.au
science.uq.edu.au/planner
Bachelor of AGRIBUSINESS

Discover the commercial world behind agriculture and the agrifood value chain linking producers with consumers, in one of the leading agribusiness programs in the country.

Why Agribusiness at UQ?
Agribusiness drives the entire supply chain, from the seeds that grow crops to the machines that harvest them, all the way through to the retail marketing of food and fibre.

It focuses on businesses that underpin the food and fibre industries, both in Australia and overseas. Creating innovative, value-added food and fibre products, and managing inputs such as agricultural chemicals, fertiliser, machinery, human resources, and financial and productivity advisory services for businesses in the supply chain, agribusiness plays a vital role in the global economy. It also contributes to the commercialisation of new biotechnologies and information technologies to improve the production and marketing of food and fibre products.

Study Agribusiness at UQ and prepare yourself for a business career in the fast-growing food and fibre industry. To ensure you receive the most relevant, up-to-date knowledge and practical experience, this program has been developed in close and ongoing collaboration with the global food and fibre industry.

What you will study
Learn to market, finance and manage people and technology along the agrifood value chain linking producers with consumers. You will also study accounting, economics and market research in an agribusiness context. Develop a thorough understanding of the businesses driving the food and fibre industries, both nationally and internationally.

Tailor your studies through your elective courses, towards your preferred career path. Your courses at St Lucia are taught by the UQ Business School, and courses at Gatton are through the School of Agriculture and Food Sciences, both highly ranked worldwide in the business and agricultural sectors. In your first year, you will be based at both the Gatton and St Lucia campuses. You will complete three courses at St Lucia and one at Gatton each semester. In subsequent years you will be based at the Gatton campus.

Dual programs
You can study the Bachelor of Agribusiness as a dual degree with either the Bachelor of Equine Science, the Bachelor of Sustainable Agriculture (majoring in Agronomy, Horticulture, or Livestock and Poultry Science), the Bachelor of Veterinary Technology, or the Bachelor of Wildlife Science. The dual four-year program allows you to combine practical business skills with your interests in either of these four disciplines.

Placements and practical experience
During the first two years of the program, you will interact with agribusiness organisations through visits, case studies and research projects. In your final year, you will undertake a major project working collaboratively within an agribusiness organisation as a member of a small team of four or five students. Your project will focus on commercial outcomes and may include international market research to address a client’s brief. Regardless of the project undertaken, it will provide an
excellent opportunity to apply your business skills and knowledge gained throughout the program in a real-life business context. Some students have been offered jobs with companies even before their graduation as a result of the working relationships they established with their clients.

Careers
You will be internationally oriented and job-ready for agribusiness management positions, with your keen market focus, commercial awareness, innovativeness and relevant technical skills.

Agribusiness graduates find almost immediate employment in the food and fibre industries in managerial, administrative or research roles related to:
• agribusiness management
• agribusiness research
• agri-politics
• banking, finance, investment and insurance
• commodity trading, sales and marketing
• export marketing and management
• government work – both in Australia and overseas
• policy development and analysis in agricultural and regional agencies

• property management
• supply chain management
• tourism.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Agribusiness. See page 64 for more information.

SAMPLE COURSES
Accounting for Decision Making
Agrifood Strategy and Competitiveness
Agripreneurship
Applied Market Research
Commodities, Futures and Options
Export Marketing and Practices
Food and Fibre Case Studies I, II and III
Food and Fibre in the E-Landscape
Foundations of Marketing
Introduction to Human Resource Management
Investment Project Appraisal
Sustainable Food Supply Chains

For more information
future-students.uq.edu.au
science.uq.edu.au/planner

STEPHANIE COOK
Bachelor of Agribusiness graduate
Territory Manager, AWB

I really enjoyed how ‘real life’ my degree was. We often went out of the classroom to farms, multiple different agribusinesses, the port, and workplaces. Applying what we were learning to real-life contexts and actual businesses made it not only more interesting, but I was able to see where I could apply my learnings.
Bachelor of AGRICULTURAL SCIENCE (HONOURS)

Learn to innovate and apply scientific techniques that improve crop and animal production to meet the world’s growing need for food and fibres.

Why Agricultural Science (Honours) at UQ?
With worldwide demand for food rapidly increasing, agricultural science is of major importance to Australia’s economy, and offers high employment prospects nationally and globally for graduates, with two or more positions available in Australia for every university graduate.

In this four-year program, you will learn how to research and develop higher yielding and more water-efficient crops, healthier animals, and new technologies for improved production. Equip yourself with advanced scientific, technological, management, economic, environmental and social principles to respond to the world’s growing need for food and fibres.

You will access UQ’s expert educators and researchers, who are at the forefront of agricultural science in Australia and overseas, as well as our extensive industry networks and specialist research facilities in biofuels, plant genomics and genetics, animal genetics, animal behaviour, microbiology, animal nutrition, land use for sustainability, and agricultural development in the world context.

In your first two years, you will gain a solid understanding of the agricultural sector and undertake foundation and advanced courses in animal and plant science. In your final two years, you will specialise in animal or plant science, and during your final year, you will undertake an independent research project.

Majors
Animal Science
Focus on the science and management of production animals including beef and dairy cattle, poultry, sheep, goats and pigs. You will study nutrition and reproduction (of both grazing animals and intensively housed animals), animal health and genetics, animal behaviour, microbiology, anatomy and physiology, and biochemistry and pasture science.

Plant Science
Learn the essential components of crop production systems, including agronomy, plant molecular genetics and breeding, plant pathology, plant physiology and plant soil interactions. Develop your broad knowledge of subtropical and tropical agriculture, and gain important scientific research skills to allow you to contribute to innovating more efficient and less resource-intensive crop production systems.

Placements and practical experience
You will have practical learning opportunities in agricultural production, including the opportunity for a three-week study tour in...
South-East Asia, where you will focus on the biophysical, economic and social aspects of small-scale tropical production systems. An intensive research project in your final year will expand your national or global perspective on agriculture, and give you the skills necessary for a career in agricultural research and development, production, management, consulting or other service industries such as rural finance.

Get additional skills
You can also broaden your skill set by concurrently enrolling in the UQ-GVEC Certificate III in Rural Operations or the Farm Ready program through the UQ Gatton Vocational Education Centre (details available at gvec.gatton.uq.edu.au/our-courses).

Careers
You will solve major challenges such as climate change, food security, and the sustainable production of food and fibre for global consumption. UQ graduates work in local, national or international organisations, offering advice to graziers and growers on animal and plant nutrition and pest control. With 50 per cent of agricultural positions in Australia located in metropolitan areas, agricultural science offers exciting and challenging careers including:
• agronomists and horticulturalists advising growers on crop cultivation to ensure maximum profitability and sustainability
• scientists in government, industry and international institutions working on genetic engineering and soil science
• agricultural consultants and advisors for producers and companies
• managers of agricultural businesses, family and company-owned farms, or national and international agribusiness companies and rural industries
• advisers in banks and other financial organisations
• agricultural and resource economists
• extension and inspection officers
• land information systems officers
• regulators of government policy.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Agricultural Science. See page 64 for more information.

SAMPLE COURSES
Agricultural Biochemistry
Agricultural Development in Asia
Agricultural Economics
Agricultural Microbiology and Gene Technology
Agricultural Research Methodologies
Agronomy
Analysis of Scientific Data
Animal Nutrition
Australia’s Bio-Physical Environment
Chemistry I
Design and Analysis of Experiments
Environment and Society
Food for a Healthy Planet
Land Use and Management
Molecular and Quantitative Genetics
Natural Resource Management
The Soil Environment
Tropical Agriculture

MICHAEL WELLINGTON
Bachelor of Agricultural Science student

The ability to study agricultural science at a rural campus places you with like-minded students and enables you to become immersed in the agricultural sector.

The Bachelor of Agricultural Science is a comprehensive program that gives you a wide variety of employment or further study opportunities as well as a sample of international agriculture.

UQ is preparing me for my future career by putting me in contact with researchers and other industry professionals who can put me on the right track.

For more information
future-students.uq.edu.au
science.uq.edu.au/planner
Bachelor of BIOMEDICAL SCIENCE

Study the latest in globally relevant biomedical practices, and get the theoretical and hands-on skills to prepare yourself for an exciting career in an industry that’s making incredible advances in modern medical science.

Why Biomedical Science at UQ?
Biomedical scientists provide the foundation of modern healthcare and assist in developing treatments for diseases. Through cancer screening, diagnosing HIV, designing new drugs, and managing food poisoning and infection control, biomedical scientists are making incredible advances in modern medical science. Working in partnership with doctors, nurses and other healthcare professionals, they carry out clinical tests, evaluate the effectiveness of treatment, and research the causes and cures for disease. By understanding how the human body works and what goes wrong in disease, biomedical scientists apply their knowledge to develop new treatments.

This brand new three-year program provides you with both the breadth and the depth of modern biomedical science. Learn from UQ researchers who are leaders in this area and benefit from their knowledge of the latest biomedical science developments.

By integrating your study across the various discipline areas in the biomedical sciences, you will graduate with a well-grounded and wide range of knowledge in biomedical science to enter a rewarding career in modern biomedical science. You can also use this program as a pathway to study medicine or allied health programs.

What you will study
Your courses will cover the broad areas of molecular and cellular biology (biochemistry and molecular biology, human genetics, developmental biology and immunology and infectious diseases) through to body systems (physiology, neuroscience, anatomy and pharmacology). Take the opportunity to specialise in one or more of these areas in your third year if you wish. You will learn the scientific process through activities ranging from experimental design and hands-on experiments to computer modelling.

Your areas of study
Courses focusing on molecular and cellular biology

Biochemistry and Molecular Biology
Examine the molecules made by living organisms in a cellular context, and apply this knowledge in all areas of biomedical science. You will gain the research tools to address questions on how cells divide, grow, communicate and die, and understand the structure, function and interactions of nucleic acids, proteins, carbohydrates and lipids, and their contribution to cellular activities and processes.

Human Genetics
Study the human genome and its significance as the instruction book of life. Contribute to the ethical debate on the use of genetic information and be a part of future discoveries identifying the genetic mechanisms that define what it is to be human. Human Genetics will allow you to employ statistical and mathematical skills needed to analyse large biological data sets generated from sequencing the human genome.

Developmental Biology
Learn how organisms and cells grow and develop according to their genetic blueprint, and understand how genes contribute to the development of organs and tissues. This is central to understanding the basis of human health and disease. It also provides essential knowledge needed for bioengineering and nanotechnology.
Immunology and Infectious Diseases
You will examine the principles of immunological responses in the body. The biology of microbes, such as bacteria, fungi, and viruses will lead to examining examples of infectious diseases, including HIV, malaria, tuberculosis, SARS, and exotic influenzas. These are all a threat to global health. Your study of molecular diagnostics will allow you to understand how new vaccines and therapeutic treatments are developed.

Courses focusing on body systems

Physiology
Examine how the body works, applying your knowledge at the molecular and cellular levels to understand integrative control of tissues, organs and systems. Physiology aims to explore normal processes in the body, and the changes that occur in disease. You will gain a unique insight into physiology from many different perspectives.

Neuroscience
This is a rapidly growing field examining the nervous system, a complex array of billions of interconnected cells responsible for integrating, processing and coordinating sensory information and motor commands. Examine how neuroscience and neural stem cells are being used in new therapeutic strategies to treat neurological and mental illnesses.

Anatomy
Understand human anatomy and anatomical data analysis. Using human cadavers, learn about the macroscopic structure of human organ systems including the musculoskeletal, nervous and visceral systems. You will collect and evaluate anatomical data, gaining insights into human variation in health and disease.

Pharmacology
Learn the principles that underpin how drugs impact on the functioning of the human body and are useful in the prevention and treatment of disease. You will also discover how pharmacologists are significantly improving therapies for diseases through advances in drug design and development, leading to new drugs or better use of existing drugs.

Practical experience
For more than half of your program, you will benefit from applying theory to practice through practical laboratory-based experiments.

Career opportunities
The Bachelor of Biomedical Science will help you to embark on a biomedical science career including in:

• hospital and diagnostic clinical laboratories
• biotechnology and pharmaceutical companies
• laboratory work in molecular and cellular biology
• health policy and communication
• secondary schools or other educational institutions, when combined with a teaching qualification.
This program also provides an excellent pathway to study medicine or allied health programs.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. See page 64 for more information.

MEG DONOVAN
Bachelor of Biomedical Science (Honours) graduate

I have always wanted to help people, and I decided to study biomedical science because it sounded interesting and appeared to be at the interface of science and medicine. Throughout my degree, I was exposed to a broad range of topics ranging from immunology, developmental biology, microbiology and biochemistry. Having grown up in a small town near Cairns, deciding to study in Brisbane was an exciting but daunting move, and I stand by my decision in choosing UQ. Reflecting on all the opportunities I have been given and everything I have learnt, I would not have wanted it any other way.

For more information
uq.edu.au/sbms
science.uq.edu.au/planner
enquire@science.uq.edu.au
P +61 7 3365 1888

See also information on the Biomedical Science major in the Bachelor of Advanced Science (Honours) on page 8 and the Biomedical Science major in the Bachelor of Science on page 37.
Why Biotechnology (Honours) at UQ?

From brewing and wastewater management to drug design and gene therapy, biotechnology spans many industries and specialisations, and is one of the most rapidly developing sectors across the world. Study biotechnology at UQ and you will be prepared with advanced skills in applied biotechnology for an exciting career in research or the biotech industry more generally. You will examine microorganisms, plants and animals, and learn how to develop viable products and activities. You will receive extensive hands-on laboratory experience and practical product development skills, while learning cutting-edge theory and research from some of Australia’s leading educators in biotechnology.

Biotechnology has led to some of the most important advances in modern science with applications across a variety of industries, such as:

- health (rapid diagnosis of infections such as SARS and exotic influenzas, or inherited diseases such as cystic fibrosis)
- agriculture (using genetic engineering in plants and animals to improve yield, vitamin content or pest resistance)
- pharmaceuticals (developing new drugs and antibiotics using computational biology)
- chemical/nanotechnology (creating new biomaterials for tissue and organ replacement)
- genetics (DNA fingerprinting to confirm parentage or livestock pedigree, or in forensic applications)
- environment (bioremediation such as using bacteria to clean up oil spills).

What you will study

You will receive a strong foundation in molecular genetics, microbiology, immunology, physics, chemistry, engineering and mathematics. You will complete many of the core technical skill courses offered in UQ’s Bachelor of Science and, from your second year onwards, you will learn about commercial and intellectual property concepts that are important in the development of new biotechnology products.

Your fourth year will be taken at honours level, with two honours streams available. In one stream, you can choose to follow a research focus that addresses both fundamental and applied technical issues in biotechnology. Or, if you would like to pursue a career in new product development, you can focus on business and entrepreneurship in the other stream.

The product development pathway allows you to earn up to one semester of credit toward the Master of Business (Entrepreneurship), and obtain both the Bachelor of Biotechnology (Honours) and Master of Business (Entrepreneurship) qualifications within five years.

Single majors

- Bioinformatics
- Bioprocess Technology
- Chemical Biotechnology
- Drug Design and Development
- Microbial Biotechnology
- Molecular Biotechnology
- Nanotechnology
- Plant Biotechnology
Dual major
You can study Innovation Management as a dual major with any of the previously listed majors to prepare you for the growing focus on managing commercial outcomes from biotechnology research. A dual Innovation Management major gives you the best combination of scientific skills and business knowledge.

Placements and practical experience
Our Student Industry Placement and Internship Program is available through UQ’s School of Chemistry and Molecular Biosciences. Depending on your level of study, projects typically involve solving a technical or operational problem, or producing a report of your findings. More information can be found at scmb.uq.edu.au/industry-placements

Careers
Work in biotechnology cuts across many industrial and service sectors, including health, agriculture, diagnostics, environment, forestry, law and commerce. In Australia, the biotech industry is continually expanding, with more than 400 companies now in operation across the nation.

This program will lead you to possible careers in:
• agricultural industries (in areas such as plant breeding and engineering)
• chemical companies (in areas like nanotechnology and biosensor applications, and developing drug leads)
• diagnostic companies (undertaking diagnostic test design, development and production)
• government agencies (in roles such as technology analysts or commercialisation officers)
• legal and consulting companies (in a role such as business plan analysts)
• pharmaceutical companies (in areas such as drug design and development or pharmaceutical production, as well as research institutes, universities or industry)
• venture capital companies.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Biotechnology, Bioinformatics or Molecular Biology. See page 64 for more information.

SAMPLE COURSES
Bioinformatics
Advanced Bioinformatics
Programming in the Large
Bioprocess Technology
Biomolecular Engineering
Process Principles
Chemical Biotechnology
Determination of Molecular Structure
Experimental Chemistry
Drug Design and Development
Medicinal and Biological Chemistry
Systems Pharmacology
Microbial Biotechnology
Microbes and Human Health
Molecular Microbiology
Molecular Biotechnology
Genomics and Bioinformatics
Molecular Cell Biology
Nanotechnology
Nanoscience: Self-assembly
Nanoscience: Synthesis
Plant Biotechnology
Plant Biology
Plant Molecular Biology and Biotechnology

For more information
future-students.uq.edu.au/science.uq.edu.au/planner

Over 450 BIOTECH BUSINESSES operate in AUSTRALIA*

ANN DAMIEN
Bachelor of Biotechnology (Honours) graduate
New Technology Associate
Asia-Pacific New Technologies Team (ANTT), Cook Medical Australia

UQ’s international ranking and reputation for world-acclaimed researchers in life sciences along with excellent campus facilities placed UQ at the top of my preference list. The variety of business subjects blended in with the sciences provided me with a wide exposure to the field of biotechnology. This complemented my research and helped me gain insights into the gaps arising in this field. Overall, campus life proved itself to be an incredible training ground where I could push myself beyond my limits to build and prune a range of transferable skills like leadership, communication, networking and time management.
Why Environmental Management (Honours) at UQ?

Learn from some of the best academics and active researchers in this field on how to manage many of the environmental challenges faced by modern society both locally and globally, and address the fundamental issue of sustaining our natural environment and its resources. You will gain a foundation in environmental sciences with added focus on social and economic disciplines, decision-making, problem-solving and policy analysis.

What you will study

During your first two years of study you will gain a sound understanding of the natural sciences. You will then learn how to manage complex environmental problems through techniques and approaches that effectively integrate biophysical, social, cultural, economic, legal and management factors. In your third year, you will experience a two-week field trip to investigate environmental management practices in a variety of contexts.

You will also complete an industry placement, where you will refine your understanding and skills in environmental management. In your final year, you will integrate and apply the research, core knowledge and skills acquired in your first three years and develop your ability to manage complex real-world problems that affect a range of environments, from natural through to urban and industrial settings. If you achieve an adequate grade point average during your first three years of study, you can elect to undertake an individual research thesis in your fourth year, or choose to undertake the industry-oriented group research project.

Extended majors

During your program you may select an extended major in either Natural Systems and Wildlife, or Sustainable Development.

Natural Systems and Wildlife

Learn to use scientific, social, economic and managerial information in natural systems and wildlife conservation and management. Combine your fundamental biological studies with multidisciplinary skills in environmental management, decision-making, problem-solving and policy analysis.

Sustainable Development

Learn strategies to reduce the effect of industry and urban development on the environment and implement ways to reduce or eliminate existing and potential environmental concerns. Develop multidisciplinary skills in environmental management, decision-making and problem-solving with a focus on urban, industrial and rural environments. You will assist firms and governments to set and meet appropriate environmental standards.

Your choice of specialisation areas

Use your elective courses to extend your specialisation in the following fields:

- Business and Sustainability
- Conservation and Wildlife Management
- Environmental Monitoring and Assessment
- Global Change
- Marine and Coastal Management
- Parks and Wildlife Management
- Regional Natural Resource Management
- Industrial Ecology and Cleaner Production
- Environmental Management in Mining
CAMILLE OLIVER
Bachelor of Environmental Management (Sustainable Development) graduate
Environmental Officer (Compliance), Queensland Government Department of
Environment and Heritage Protection

My degree helped me to secure this job as it provided me with a thorough understanding of environmental legislation in Queensland and developed my critical thinking, data analysis and report writing skills. I chose the Bachelor of Environmental Management for the opportunities to protect environmental values, regularly work outdoors, understand natural systems and processes, and develop solutions to complex problems. The degree also offered fantastic lecturers, a diverse range of elective subjects, great fieldwork experiences and good career prospects.

The program’s flexible structure allows you to change and transfer between extended majors up to the end of the second semester in your second year.

Placements and practical experience
In your third year, you will enjoy a full semester of a combination of placement and practical experience. Apply your knowledge and skills during a compulsory two-week field trip to observe environmental management in practice, as well as network with practitioners in government and industry. For the remainder of the semester you will participate in an industry placement program, where you will undertake a supervised project in environmental management. In your final year, an in-depth research project or case study in conjunction with an external client will allow you to apply your knowledge and skills to a real-life environmental problem.

As part of your studies, you can participate in a variety of field trips to a diverse range of environments across Queensland, and have the opportunity to undertake field trips to international locations including Indonesia, Vietnam and Hong Kong. Use these components of the program to actively develop your connections with potential employers and industry and gain hands-on and practical skills to ensure that you will be industry-ready.

Careers
You will find employment in managerial, research, administrative and education roles within consultancies, mining companies, government departments, landscape and catchment management groups and national and international Non-Government Organisations.

Opportunities are available in a variety of sectors including:
• national parks and wildlife conservation
• environmental assessment and compliance
• natural resource management including coastal, river and catchment systems
• policy development
• government and commercial consultancies in environmental planning and management
• mining and resources industry
• environmental tourism
• environmental management.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Conservation, Environmental Management or Mineral Resources. See page 64 for more information.

For more information
future-students.uq.edu.au
science.uq.edu.au/planner
Bachelor of ENVIRONMENTAL SCIENCE (HONOURS)

Enhance your scientific knowledge of earth resources, ecology and conservation, environmental toxicology, or natural resource science with extensive practical experience opportunities to investigate and solve global environmental problems.

Why Environmental Science (Honours) at UQ?

With increasing local and global threats to our environment, there is a critical need for skilled environmental scientists to effectively manage natural resources, advise legislation, guide sustainable business and economies of the future, devise adaptations to global change, and ensure the health of humans and the integrity of ecosystems.

Learn environmental science at Australia’s most highly ranked university for research in environmental sciences and take advantage of UQ’s local, national and global networks.

This program will equip you with the knowledge and practical skills to make a difference to your environment, both in Australia and overseas. Understand the impacts of climate change and how to devise strategies to improve sustainability, manage ecosystems and preserve global biodiversity, and secure clean water and food. Learn how to address the many challenges arising from diminishing natural resources and degrading environments.

You will combine your scientific skills with knowledge of the legal, political and social aspects of environmental management as well as undertake extensive practical, field and research experience to be well-equipped for a career in environmental science.

What you will study

You will examine fundamental environmental processes, and the way they can be described, monitored and predicted. You will also study the effect of human impact on the physical and biological environment. You will specialise in one of four majors: Earth Resources; Ecology and Conservation; Environmental Toxicology; or Natural Resource Science.

In each of these majors, you will study core and advanced science and regulatory topics, participate in environmental science field trips, and complete a substantial research project that includes an environmental impact assessment or an environmental audit.

Majors

Earth Resources

Study the physical environment and develop important knowledge and skills to minimise the impact of extraction of minerals, fossil fuels, water and other resources. You will also learn about geological phenomena such as earthquakes, floods and erosion.

Ecology and Conservation

Understand how to minimise conflict between growth and development and our environment. Develop your multidisciplinary skills in environmental management, decision-making and problem-solving, with a focus on urban, industrial and rural environments, and assist firms and governments to set and meet appropriate environmental standards.

*QS World University Rankings by Subject, 2016
Environmental Toxicology
Identify and quantify problems around the presence of chemical pollutants and toxicology in soil, air and water, and how these affect human and environmental health. You will focus on the problems associated with existing and emerging environmental toxins, to address the risks and implement regulation.

Natural Resource Science
Examine the various components of landscapes (soils, water and vegetation) and develop strategies to correct the adverse effects of human use on these resources. You will study environmental processes, the way they can be described, monitored and predicted, and the effect of human impact on the physical and biological environment, to devise solutions for a sustainable future.

Placements and practical experience
You will undertake extensive practical experience that will set you apart from other graduates and develop your skills to deliver a range of environmental strategies, solutions and programs. You will participate in numerous excursions, field-based activities and research opportunities in diverse subtropical and tropical ecosystems. These range across arid and marine environments and include World Heritage rainforests, the Great Barrier Reef, North Stradbroke Island and outback Australia. During your studies, you will work with specialists in one of the largest groups of environmental experts in Australia and conduct research related to contemporary environmental issues.

Careers
As a graduate, you will contribute to environmental decision-making and management, and address global environmental challenges. You can find employment in organisations and sectors such as:

- consultant companies dealing with environmental monitoring, impact assessment and management
- government agencies, nationally and internationally
- mining industries
- private companies, providing sustainability advice
- natural resource management, including coastal, river and catchment systems
- national parks and wildlife conservation
- policy development for government
- teaching and research
- environmental tourism
- international agencies.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Conservation, Environmental Management or Mineral Resources. See page 64 for more information.

MAX SETCHFIELD
Bachelor of Environmental Science (Honours) graduate
Environmental Scientist, Environmental Earth Sciences

As a practical learner, I highly valued the field trips offered during the program. One of the most valuable trips was in Western Queensland where we were able to talk to farmers, landholders and managers as well as witness agricultural processes in action. This is something that can’t be gained through a textbook or lecture.

Overall, during my years at UQ and especially during my final honours year, I experienced some incredible lectures, listened to the wisdom of UQ alumni and met some highly passionate researchers and industry leaders.

It is these experiences that have enabled me to envisage life as an environmental professional and paved the way for where I am today, working as a soil scientist.

SAMPLE COURSES
Earth Resources
Climatology and Hydrology
Field Geology
Mineralogy
Ecology and Conservation
Ecology
Outback Ecology Field Studies
Zoology
Environmental Toxicology
Environmental Toxicology and Monitoring
Integrative Cell and Tissue Biology
Medicinal and Biological Chemistry
Natural Resource Science
Ecology
Plant Biology
Soils, Landscapes and Environments

For more information future-students.uq.edu.au science.uq.edu.au/planner
Bachelor of EQUINE SCIENCE

Make your passion for horses into a career. Focus on strategies to improve the management, performance and welfare of horses across the global equine industry.

Why Equine Science at UQ?
The equine sector is a fast-growing global industry. In Australia itself, the sector contributes billions of dollars annually to the country’s economy. Equine science focuses on nutrition, breeding, exercise physiology, health and rehabilitation, welfare and behaviour of horses, and explores the interaction between horse and rider.

This program prepares you for a diverse career working with horses in the global equine sector. You will acquire scientific knowledge that can be applied within an industry setting to improve the management, performance and wellbeing of racehorses, performance horses and leisure horses. Learning from UQ’s internationally regarded equine academic staff, you will acquire skills to improve outcomes for horses, riders and the equine industry.

As you progress through the program, choose from a range of electives, including agribusiness, biosecurity, pasture and production courses. You will access world-class equine facilities located at our Gatton campus, which include equitation arenas (show jumping and dressage), breeding and horse handling facilities, day yards and stabling amenities.

What you will study
You will be introduced to the scientific and practical aspects of the equine industry.

You will gain expertise in generic animal science principles such as:

- animal physiology
- animal behaviour and welfare
- nutrition
- reproduction
- microbiology and its relationship to health and disease.

You will also learn to apply these principles to related social and community issues.

In the first year of your program, you will focus on the underpinning knowledge for the animal sciences, and be introduced to the discipline of equine science.

In the second year of your program you will build on your foundational knowledge to investigate the relationship between horses and humans, including horse behaviour and its relationship to handling and training, horse welfare, plus horse reproduction and its application to the equine breeding industry. You will also learn the sciences that relate to animal genetics, nutrition, microbiology and health.

In the third year of your program, you will apply your knowledge to case studies in equine exercise, rehabilitation, nutrition and health.

Dual program
You can study the Bachelor of Equine Science as a dual degree with the Bachelor of Agribusiness. The dual four-year
The program allows you to combine practical business skills with your interests in equine science.

**Placements and practical experience**
During the program, you will work extensively with horses from the UQ Australian Stock Horse stud, in conjunction with UQ’s expert instructors and lecturers. You will also be able to participate in a three-week tour of equine and production animal facilities in Kentucky and Texas, USA. You might also join the UQ Equestrian Club, which is part of UQ Sport. Further hands-on training is available by including a vocational program with your studies, or taking part in extended industry placements. You can also bring your own horse to agist at the Gatton campus.

**Get additional skills**
You can also broaden your skill set by concurrently enrolling in the UQ-GVEC Certificate III in Rural Operations or the Farm Ready program through the UQ Gatton Vocational Education Centre (details available at gvec.gatton.uq.edu.au/our-courses).

**Careers**
As an equine specialist, you will establish a career in fields and industries such as:
- equine enterprise management
- agribusiness firms servicing the equine industry
- animal nutrition and animal health companies
- bloodstock agencies
- breed societies, equestrian centres and riding schools
- equine industry organisations and educational institutions
- equine journalism
- horse studs
- preconditioning and training businesses
- racing and competition stables
- sales and marketing
- statutory bodies administering racing and trotting.

You can also choose to pursue a research career by undertaking a research honours year, which could lead to postgraduate studies.

**Postgraduate options**
Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Agribusiness or Agricultural Science. See page 64 for more information.

**SAMPLE COURSES**
- Equine Behaviour and Performance
- Equine Breeding and Stud Management
- Equine Exercise and Rehabilitation
- Equine Nutrition and Health
- Fundamentals of Equine Science
- Agricultural Microbiology and Gene Technology
- Animal Anatomy and Physiology I
- Animal Breeding and Genetics
- Animal Health and Epidemiology
- Animal Nutrition
- Animal Reproduction
- Emerging Issues in Animal Bioscience
- Short International Experience
- Sustainable Animal Systems

**For more information**
future-students.uq.edu.au
science.uq.edu.au/planner

**JORDAN WATSON**
Bachelor of Equine Science student

I would suggest to any students wanting a career with horses, even if you haven’t had much experience previously, to take this opportunity. You will complete this degree well-prepared and comfortable with anything the equine industry can throw at you.
**Bachelor of FOOD TECHNOLOGY (HONOURS)**

Discover the scientific methods used in the global food industry to preserve, package, develop and commercialise new products to meet the increasing global demand for safe, nutritious and transportable food.

### Why Food Technology at UQ?

Be in demand from employers in the global food industry with a Bachelor of Food Technology (Honours) from UQ. Developed in close consultation with the food industry, you will be exposed to the most current learnings from leaders in the industry, and focus on global production issues. The placement program and research project in your final year provides practical skills and allows you to apply your strong theoretical knowledge to prepare you for a dynamic career in the food industry.

### What you will study

Focus on the physical, microbiological, and chemical makeup of food and develop expertise in processing, preserving, packaging, storing and distributing food to industry and government specifications and regulations. You will learn how to improve food production from post-harvest raw material until it reaches the consumer.

Learn strategies to optimise food quality and quantity, food safety and nutritional value, and gain an understanding of how the body processes food when we consume it.

In your final year, complete a research project to gain hands-on, practical insight and experience to ensure you graduate ready for an exciting career in the industry. This science-based program prepares you for employment in technical and scientific food manufacturing industries and does not cover the domestic cooking, catering or hospitality fields.

### Placements and practical experience

In your third year, you will undertake a 14-week (one semester) placement of more than 400 hours in a modern food processing company and observe food technology in action. This invaluable industry experience, and the opportunity to establish wide professional networks, will boost your employment prospects. In your final year you will complete a research project in one or more of the disciplines of food chemistry, food microbiology, food technology, food engineering, or sensory science. Some of these projects are also conducted in conjunction with food companies to give you additional insight into the industry and the opportunity to establish strong business connections.

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Duration: 4 years full-time; part-time equivalent available to Australian residents and citizens

Location: St Lucia

Entry requirements: Queensland Year 12 (or equivalent) English, Maths B, and Chemistry

QTAC code: 703041

The UQ OP Guarantee Scheme applies (see [future-students.uq.edu.au/apply/undergraduate](http://future-students.uq.edu.au/apply/undergraduate))

Program code: 2377

Delivery mode: Internal

International availability: Yes (CRICOS Code 082630B)

International students must study on a full-time basis

English proficiency for international students: IELTS overall 6.5, writing 6, reading 6, speaking 6, and listening 6. For other English Language Proficiency Tests and Scores approved for UQ, view the English proficiency policy at [future-students.uq.edu.au/english-requirements](http://future-students.uq.edu.au/english-requirements)

HONOURS

Available as part of the standard program

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2017 OP 8 RANK 84 ATAR 83.70
Careers

Food technology graduates are in high demand in food production and development positions with multinational companies around the world. The food industry is Australia’s largest manufacturing sector, and has unmet labour demand. After graduating, you could gain employment in supervisory or managerial roles as a:

• food technologist
• food chemist
• food microbiologist
• laboratory supervisor
• production manager
• process and product development manager
• quality control manager.

Postgraduate options

Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Food Science and Technology. See page 64 for more information.

SAMPLE COURSES

- Analysis of Scientific Data
- Food Chemistry
- Food Microbiology (I and II)
- Food Policy, Safety and Quality Management
- Food Process Engineering (I and II)
- Food Product Development
- Food Structure and Sensory Science
- Functional Foods and Nutraceuticals
- General, Organic and Biological Chemistry
- Genes, Cells and Evolution
- Nutrition Science
- Principles of Food Preservation
- Professional Practice
- Research Project

VAUGHAN GOUGH

Bachelor of Food Technology (Honours) graduate
R&D Laboratory Manager,
Flavour Creations Pty Ltd

"UQ is a leading university with a well-known and respected food technology program. I started my career with Flavour Creations through the placement program during my studies. I am a complete foodie and love trying out new food creations, so it’s a real kick when something I design makes it to the supermarket shelf. As R&D Laboratory Manager, I lead a team of eight food scientists in developing innovative nutritional solutions and products for dysphagia, malnutrition and other specific diseases."
Bachelor of
MATHEMATICS

Study advanced mathematics and learn how to solve problems in the sciences, engineering, information technology, economics, and business. You will gain the foundation for a highly-paid career in diverse industry sectors, or multidisciplinary and emerging research areas.

Why Mathematics at UQ?
Mathematics is one of the most enduring fields of study and is essential in an increasing number of disciplines and professions. Today’s mathematicians and statisticians combine their knowledge with modelling and the latest computer technology to solve problems in the physical and biological sciences, engineering, information technology, economics and business. UQ’s mathematics research and industry networks will widen your career options and help you excel in the mathematical aspects of other disciplines.

What you will study
You will develop a deep knowledge of mathematical topics and a high level of sophistication in the application of mathematics across a variety of fields and industries. Specialise your studies with a major, or diversify your study with a minor or dual program study option.

Majors
Applied Mathematics
Focus on the derivation and evaluation of models applied in the physical, biological and engineering sciences.

Data Analytics and Operations Research
Develop skills in analysing large and complex data sets and learn how to make effective decisions using optimisation techniques.

Mathematical Physics
Explore the mathematical foundations of modern physical theories, and gain a mathematical understanding of contemporary science, including statistical mechanics, relativity and the quantum theory of many body systems.

Pure Mathematics
Examine the intrinsic nature and fundamental properties of mathematical concepts, and expand your appreciation of the ubiquity, universality and beauty of mathematics while developing high-level skills in critical, analytical and abstract thinking.

Statistics
Acquire the mathematical foundations and techniques necessary to understand and deal with chance and uncertainty through the design, collection, analysis and interpretation of data.

Majors

Applied Mathematics
Data Analytics and Operations Research
Mathematical Physics
Pure Mathematics
Statistics

Duration 3 years full-time; part-time equivalent available to Australian residents and citizens
Location St Lucia
Entry requirements Queensland Year 12 (or equivalent) English and Maths B
QTAC code 714401
Program code 2393
Delivery mode Internal
International availability Yes (CRICOS Code 088347A)
International students must study on a full-time basis
English proficiency for international students IELTS overall 6.5, writing 6, reading 6, speaking 6, and listening 6.
For other English Language Proficiency Tests and Scores approved for UQ, view the English proficiency policy at future-students.uq.edu.au/english-requirements

HONOURS
Available as an extra year of study

DUAL PROGRAMS
 Bachelor of Mathematics
  Arts
  Business Management
  Commerce
  Economics
  Education (Secondary)
  Engineering (Hons)
  Information Technology
  Science

*The importance of advanced physical and mathematical sciences to the Australian economy, Australian Academy of Science 2015.
SAMPLE COURSES

Applied Mathematics
Financial Mathematics
Mathematical Biology
Data Analytics and Operations Research
Experimental Design
Optimisation Theory
Mathematical Physics
Abstract Algebra and Number Theory
Algebraic Methods of Mathematical Physics
Pure Mathematics
Functional Analysis
Graph Theory and Design Theory
Statistics
Probability and Statistics
Statistical Modelling and Analysis

Minors

Combine your chosen major with a minor in another field including:

Bioinformatics
Enhance your understanding of biological data to change the way health and environmental issues are managed, and the way biological research is undertaken and results interpreted.

Computer Science
Study the science of computing and its application to other scientific disciplines and gain a solid grounding in the computational, scientific and mathematical skills that drive innovation.

Physics
Explore and identify basic principles governing the structure and behaviour of matter, the generation and transfer of energy, and the interaction of matter and energy. Discover new interdisciplinary areas such as information technology, nanotechnology, quantum technology and biophotonics.

Placements and practical experience

Undertake a summer research project or internship through the School of Mathematics and Physics. Undergraduate research scholarships are available through UQ and some industry groups.

Careers

Demand for quantitatively trained graduates is at an all-time high. Graduates with a degree in mathematics are sought by industry for their excellent quantitative and problem-solving abilities, and gain a wide range of rewarding positions in the public and private sectors, including in:

• finance
• economics
• mathematical research
• statistics
• actuarial studies

Postgraduate options

Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Science or Financial Mathematics. See page 64 for more information.

For more information

future-students.uq.edu.au
science.uq.edu.au/planner

BAXTER COWLEY
Bachelor of Mathematics student

I was attracted to the flexibility of UQ’s Bachelor of Mathematics. The freedom to direct my studies towards topics that interest me really appealed to me. Mathematics is a broad field of study, and I enjoy being exposed to its many subfields and being able to work out mathematical solutions with my classmates to problems I’ve grappled with for hours or days.
Found in almost every industry and workplace, occupational health and safety professionals are essential to the health and safety of the global workforce and are in high demand by employers. This unique program addresses psychosocial and mental health issues within the workplace as well as the long-recognised chemical, physical, mechanical and biological hazards.

Why Occupational Health and Safety Science (Honours) at UQ?

Combine your technical knowledge, advanced communication skills and your sense of social justice to make a difference to workplaces globally. You will learn from Australia’s leading occupational health and safety (OHS) experts in a program aligned to industry demands, which will allow you to graduate with the latest knowledge and practical skills for a rewarding career.

OHS professionals are employed in every workplace, so your future place of work could be as diverse as a remote mine site, a large corporate office, a laboratory or a movie set, within Australia or internationally.

On a day-to-day basis, OHS professionals are involved in:
- analysing workplace data
- completing incident investigations
- conducting OHS audits and inspections
- delivering education programs including wellness programs
- designing work environments to enhance worker health and safety
- devising, evaluating and implementing OHS management systems
- ensuring legislative compliance
- monitoring and modifying work environments.

You will be ready to work across the world including remote, rural or urban regions, and in all industries, including mining, agriculture, retail, hospitality, construction, transport, manufacturing, and health care in government, private sector or consultancy-based businesses.

The International Labour Organization estimates about two million workers worldwide die as a result of work activities each year, a statistic that is steadily growing with expanding global industrialisation.

As the world focuses on workplace safety and regulations increase, there is currently a high demand for OHS graduates in developed countries and an increasing demand in developing countries in South America and Asia.

As an OHS graduate, you will enjoy a high salary and flexible working conditions. With experience, you will have opportunities to progress into OHS management roles, often taking on the responsibility for OHS across a range of countries.

What you will study

Gain theoretical knowledge, practical skills and the professional attributes necessary for a career in the dynamic OHS industry. This unique program addresses psychosocial and mental health issues within the workplace as well as the long-recognised chemical, physical, mechanical and biological hazards.

You will study within the context of the OHS disciplines of occupational hygiene, ergonomics, occupational health, safety science and risk management.
Your first year of study will incorporate a strong basis in the foundation sciences, as well as the opportunity to meet with OHS professionals and gain insight into their work role through the Introduction to OHS course.

Your second, third and fourth years will involve studying the core OHS areas of occupational health, ergonomics, safety science, and occupational hygiene, in addition to management, law, ethics and aspects of the environment. In your fourth year, you will undertake a full semester of industry placement, so that upon graduation you will be job-ready with a network of industry contacts.

**Placements and practical experience**

In your final year, you will complete a minimum of 480 hours of placement with one or two industry partners to ensure you are qualified and prepared to enter the industry when you graduate. This unique blend of scientific and OHS knowledge creates diverse employment opportunities for you, as employers worldwide recognise your skills and practical knowledge.

**Careers**

OHS professionals with sound scientific knowledge are in short supply and high demand, so you will have many career options. Where you choose to start your career will depend on both your career goals and personal aspirations. Roles in large organisations and consulting firms offer mentoring by senior OHS staff, and often involve travel within Australia and overseas. Comparatively, solo positions allow you to be more hands-on across the full range of OHS issues, and expose you to other business activities, such as human resources and production.

Legislative requirements mean all workplaces require OHS advice. This allows you the opportunity to work in all occupational settings and sectors, including:

- agriculture
- construction
- government
- health care
- hospitality
- manufacturing
- mining/resource industry
- retail
- tourism
- transport.

A 2013 National Safety Recruitment Survey in Australia reported average graduate salary packages of $71,997 and average workplace health and safety group manager salary packages of $300,939 per annum.

**Postgraduate options**

Research higher degrees (MPhil and PhD) in your area of interest are available. See page 64 for more information.

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**SAMPLE COURSES**

- Integrated Anatomy and Physiology
- Introduction to Human Factors
- Introduction to Psychology: Minds, Brains and Behaviour
- Occupational Health
- Occupational Health and Safety Law
- Occupational Health and Safety Management Systems
- Occupational Hygiene (I and II)
- Occupational Safety Science
- Physical Ergonomics
- Professional Practice and Emerging Issues in Occupational Health and Safety
- Research and Evaluation of Interventions in OHS
- Risk Management
- Systems Safety Engineering

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**GRACE CARROLL**

Bachelor of Occupational Health and Safety Science graduate

Safety Coordinator, City & Southwest, Sydney Metro Transport for NSW

I was drawn to the program because of the high job availability and need for qualified occupational health and safety professionals in many industries and disciplines.

While studying at UQ, I had a chance to work with a large engineering company and a first-tier construction group which positioned me well to gain full-time employment after graduating.

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**MINIMUM OF 480 HOURS of industry placement in your final year**

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**For more information**

future-students.uq.edu.au

science.uq.edu.au/planner
Bachelor of

REGIONAL AND TOWN PLANNING

From site design to regional scale analysis, you will learn how planning helps communities, companies and governments integrate the environmental, economic and social aspects of development.

Why Regional and Town Planning at UQ?

There are many ways to plan a city to balance competing priorities of development with preservation of the natural environment interests. At UQ, you can realise your goal to become an informed professional who makes well-advised planning and development decisions to meet the needs of communities. You will learn from some of Australia’s best, in a program that is recognised by employers as delivering high-quality, experienced graduates. You will receive an industry-directed balance of theoretical knowledge and practical experience, from small-scale projects to comprehensive development schemes, often in conjunction with local authorities and community organisations. With many of Queensland’s planning firms led by UQ graduates, it’s no surprise that UQ’s Bachelor of Regional and Town Planning is recognised as one of the leading planning programs and a popular choice for those seeking a challenging and rewarding career. This program is accredited by the Planning Institute of Australia (PIA).

What you will study

Learn land-use planning, urban design, transport and infrastructure planning, heritage and conservation, resource management, environmental monitoring, planning law and practice, commercial and industrial development, and policy making and implementation. You will gain skills in long-range planning as well as structural and statutory components, including the current development of the built and natural environments and the legislative framework controlling land use. Your lecturers are experts in planning theory and practice, and collaborate with guest lecturers from industry to give you access to case studies from the professional sector. You will gain knowledge and practical skills, and undertake industry-focused planning projects in each year of your studies.

In your fourth year of study, you can choose to focus on industry or undertake a research project (Honours) or, if qualified, you can undertake both. You will receive advice during the third year of your program as to which of these options is most appropriate based on your areas of interest and academic performance during the first three years of the program.

Placements and practical experience

Throughout the program you will undertake real-life planning projects. These projects expose you to plan making, urban design and community engagement activities. Past students have worked on the Indooroopilly Activity Centre, Yeerongpilly.
transit-oriented development site and the inner-city redevelopment for Brisbane City Council. Choose to internationalise your studies by enrolling in field studies courses to Indonesia, Vietnam and Hong Kong, which focus on the development of cities and urban areas, and the key issues facing different regions around the world. Or you may choose to study a semester abroad in planning programs at UQ’s partner universities through the UQ Abroad program.

Careers
You will be entering a dynamic industry that improves the quality of life for people in cities and regions. As a UQ graduate, employers will seek your ability to make environmentally, socially and economically sustainable decisions. You could be employed in a variety of roles in the public and private sectors, including:
- statutory or strategic planning
- regional development
- urban design
- environmental management and monitoring
- technology for planning
- spatial planning
- commercial and industrial development
- engineering and architectural applications
- heritage and conservation
- land-use planning
- planning law and practice
- resource management
- social planning
- tourism
- transport planning.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Urban and Regional Planning. See page 64 for more information.

SAMPLE COURSES
Advanced Planning Practice
Community Planning and Participation
Cultural Heritage Management
Human Settlements
Introduction to Planning
Professional Planning Practicum
Real Estate Development Planning
Resource Management and Environmental Planning
Teamwork and Negotiation for Planners
Transport Planning
Urban Design

For more information
future-students.uq.edu.au
science.uq.edu.au/planner

CHRIS ISLES
Bachelor of Regional and Town Planning graduate
Executive Director of Planning,
Place Design Group
2014 Queensland Planner of the Year;
2015 Australian Planner of the Year
(Planning Institute of Australia)

“
I’ve always been interested in how we live and the way our cities enable us to live our lives. Planning is a great profession, and needs energetic people who want to make a difference to our cities and how we are going to live in the future. We are moving into a new technological era and I think planning has many opportunities to adopt and apply new technologies to make our cities smarter.”
Why Science at UQ?
UQ’s Bachelor of Science (BSc) will give you the perfect balance of a defined sequence of study combined with flexible course options.

With a choice of 26 majors, you can study an extensive range of courses supported by innovative research to graduate with superior technical skills, and advanced independent thinking and communication skills. Use this range of courses to tailor the program to your individual interests and career goals. Select course combinations from science and non-science disciplines in your first year, then in your second and third years focus on one or two specialist areas (majors) to deepen your knowledge.

Bachelor of Science
with Honours
As you near the end of your BSc, you may consider applying for an honours program. Honours is an additional year of study that is essentially a research apprenticeship for a young scientist. You will work under the guidance of a researcher on a specific project of interest to them, and learn about the research environment, how to perform critical experiments and analyse data, and how to communicate and present your results. UQ Science Honours graduates are in high demand by employers due to their ability to work independently.

Bachelor of Science major at Gatton
If you choose to study the Animal and Veterinary Bioscience major, you will access the exceptional teaching and research facilities at the Gatton campus.

Animal and Veterinary Bioscience will provide you with a solid biological foundation for a career in scientific research, the animal bioscience industry and related sectors. Select this major to progress into the Bachelor of Veterinary Science.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs. See page 64 for more information.

For more information
future-students.uq.edu.au
science.uq.edu.au/planner
Enrol in a dual program to complete two degrees in a shorter time than completing each program separately. You will have the flexibility to study two areas of interest at once, extend your knowledge and skills to broaden your career opportunities, and gain a competitive employment edge.

Note: The Dual Program option is not currently available for Gatton majors.

Applying for a dual program

Dual programs at UQ have unique program codes, and you must satisfy prerequisite and entry score requirements. Domestic applicants must apply through the normal QTAC application process. International applicants should visit future-students.uq.edu.au for application details.

Transferring to a dual program

Once you have started your BSc, you can transfer to a dual program by requesting a program change or applying through QTAC. Faculty of Science academic advisors can provide further information about the best options to suit your individual needs.

Study a Bachelor of Science in combination with:

- Arts
- Biomedical Science
- Business Management
- Commerce
- Economics
- Education (Secondary)
- Engineering (Honours)
- Information Technology
- Journalism
- Laws (Honours)
- Mathematics
- Music (Honours).

**Biomedical Science/Science (BBiomedSc/BSc)**
Duration: 4 years
Equip yourself with advanced biomedical science knowledge and key practical skills in science, and broaden your career options.

**Business Management/Science (BBusMan/BSc)**
Duration: 4.25 years
Gain practical business knowledge, high-level research and problem-solving skills, and a practical and theoretical understanding in science.

**Commerce/Science (BCom/BSc)**
Duration: 4.25 years
Develop a strong background in mathematics and statistics, and practical skills in business and finance.

**Economics/Science (BEcon/BSc)**
Duration: 4.5 years
Expand your career options and apply your scientific and economics knowledge for business, government or technology-based industries.

**Engineering (Hons)/Science (BE(Hons)/BSc)**
Duration: 5 years
Create a strong science base for your engineering studies and further your interest in mathematics, physics and astrophysics.

**Information Technology/Science (BInfTech/BSc)**
Duration: 4 years
Combine the theory and practice of modern computing with another field of science, and undertake an industry placement project.

**Mathematics/Science (BMath/BSc)**
Duration: 4 years
Combine the versatility and breadth of science with in-depth knowledge of mathematics. This innovative program will develop graduates with the practical skills and interdisciplinary knowledge required to address today’s global challenges.

**Music (Hons)/Science (BMus(Hons)/BSc)**
Duration: 5 years
Secure a professional career in music and a depth of understanding in one or more fields of knowledge in the sciences, along with advanced research training in your chosen Music Honours field.

**Science/Arts (BSc/BA)**
Duration: 4 years
Build your knowledge in humanities as well as the sciences. The extensive combination of majors available will expand your career opportunities and allow you to choose from a greater range of topics than is possible in a single program.

**Science/Education (Secondary) (BSc/ BEd(Sec))**
Duration: 4 years
Specialised minors will provide you with the specific knowledge necessary for secondary teaching. The fourth year is completed as a professional practice year in schools.

**Science/Journalism (BSc/BJ)**
Duration: 4 years
Combine these programs if you are seeking a career in science journalism or other forms of scientific communication.

**Science/Laws (Hons) (BSc/LLB (Hons))**
Duration: 5.5 years
Understand and interpret the legal requirements attached to modern science and its applications. Work as a company lawyer, in environmental impact and litigation, as a medical or maritime lawyer, a patent lawyer, or as a scientist who is an expert in law.
The UQ BSc program has long been recognised as excellent preparation for studying Medicine and to advance into a medical career.

Alternatively, the UQ BSc offers a pathway to improve your entry rank for programs such as Engineering, Veterinary Science or Pharmacy. By completing a year of full-time study in the BSc, you can use your level of achievement at university (your Grade Point Average or GPA) as a way to meet the higher entry requirements of other programs. In some cases, you may gain credit into your new program for courses completed in the BSc.

If you are planning to use the BSc to improve your entry rank, you should always seek advice on the GPA required to allow you to transfer into your chosen program, as entry into some programs – particularly in the health sciences and veterinary science – is very competitive. See your academic advisor early in your studies so they can help you keep all your options open and carefully plan your first year to make sure that, if you are unsuccessful in transferring to your chosen program, you can still continue in the BSc.

Bachelor of

SCIENCE MAJORS

How do I choose an area of specialisation in the BSc?

In the BSc, you will complete a specialisation – whether it be a major, an extended major or a dual major – in your chosen area of science. Tailor your BSc study plan according to your interests and explore the flexibility to incorporate one third of your courses from other UQ programs.

What is the difference between a major, an extended major and a dual major?

A major is an area of specialisation focusing on a single discipline within a program. For example, Chemistry is a major within the Bachelor of Science. An extended major is similar to a major but contains more courses and provides greater depth in that area of study. A dual major is a combination of two different disciplines, for example Biophysics is a combination of Biology and Physics.

Majors – St Lucia

- Archaeological Science*
- Biochemistry and Molecular Biology
- Biomedical Science*
- Chemistry
- Computer Science*
- Ecology
- Food Science*
- Genetics
- Geographical Science
- Geological Sciences*
- Marine Biology**
- Marine Science
- Mathematics*
- Microbiology
- Physics*
- Plant Science
- Psychology*
- Public Health
- Statistics
- Zoology

Major – Gatton

- Animal and Veterinary Bioscience*

Dual majors

- Bioinformatics
- Biophysics
- Chemical Sciences
- Computational Science
- Food Science and Nutrition

* Also available as an extended major.  
** Only available as an extended major.

What if I can’t decide on a major?

Your study is quite broad in the early years of your program, which gives you time to decide on your area of specialisation.

Can I study part-time?

You can study the Bachelor of Science part-time but most lectures, practical lessons and other learning activities are scheduled between 8am and 6pm Monday to Friday and classes may be spread out over the week. (Note, however, that international students must study on a full-time basis.)

Can I transfer into another program?

If you decide you want to transfer to another program, you may be able to get credit towards the new program. As there are many options, it is best to seek academic advice early.

For more information
future-students.uq.edu.au
science.uq.edu.au/planner
What you will study

While commonly considered a humanities discipline, archaeology is increasingly empowered by scientific approaches and ways of thinking which have revolutionised research into globally significant issues such as human evolution and dispersal, the development of civilisation, and human-environment relationships.

With the largest number of archaeological science teaching and research staff in Australia, UQ is a recognised leader in this discipline.

During your studies you will engage in practical and field-based courses, from surveying and digging to post excavation analysis, with the opportunity to participate as a volunteer on lab and field-based research projects. You may also participate in UQ-organised excavation field-based research digs in Australia and overseas (currently located in Turkey, Cyprus, Kenya and South Africa).

Careers

You will find employment in the following sectors:

- commercial consulting (cultural heritage consultancy)
- university teaching and research
- government (developing public policy and as cultural heritage advisors)
- museums
- forensic science.

Many BSc graduates also enter into further research-based studies in honours, master and Doctor of Philosophy (PhD) programs.

A major in Archaeological Science is also available as an extended major.
What you will study

Biochemistry and molecular biology studies the chemical basis of life, and underpins all disciplines of biology. You’ll study the molecular events that control the growth and development of cells and organisms in all living things. Your lecturers are experts who will help you develop your understanding of how molecular events can go wrong in certain disease states and how an understanding of these can contribute to the development of new drugs. Through practicals, structured tutorials and specialised seminars you will discover how biochemistry and molecular biology is relevant to research and development in medicine, the environment, agriculture, proteomics, genomics, bioinformatics, biotechnology, genetic engineering, and drug design.

Careers

Biochemistry and molecular biology offers you some of the most exciting and challenging careers available within the fields of science and medicine. You may work in agriculture, health, the environment, biotechnology and pharmaceutical companies, research or quality control. You may be employed as a research biochemist or molecular biologist in laboratories in universities, companies and research institutes, investigating the molecular networks controlling normal biological processes and defective processes associated with disease affecting animals and plants. Using the latest genetic engineering and molecular-biological techniques, you may contribute to the development of new approaches to diagnose and treat diseases in roles such as:

- industrial biochemist checking the purity of food and beverages or the enzymatic production of fuels from waste products by fermentation procedures
- clinical biochemist in hospital laboratories studying the chemical composition of tissues and body fluids to assist in the study, diagnosis and treatment of diseases
- biochemist/molecular biologist in government agencies in specialist areas such as forensics, biosecurity and quarantine.

BSc Major ST LUCIA

BIOCHEMISTRY AND MOLECULAR BIOLOGY

What you will study

With rapid advances in computing and the huge increase in the amount of biological information, such as the human genome generated by research, bioinformatics is changing the way we make scientific discoveries and interpret scientific data. It combines mathematics, computing and biology, applying these disciplines to biological problems to analyse our genes and molecular structures, and to model cellular processes. Bioinformatics allows us to run computer-generated experiments to visualise in three dimensions how molecules process information.

Careers

As a new and growing area, there is a world shortage of trained bioinformaticians and computational biologists. With your strong scientific knowledge and interdisciplinary skills in computing, mathematics and biology, you will be in demand in pharmaceutical/biotechnology companies, research organisations and governments, in roles such as:

- bioinformatician
- biomedical computer scientist
- biostatistician
- clinical data manager
- geneticist
- medical writer/technical writer
- research scientist
- software/database programmer.
BIOMEDICAL SCIENCE

What you will study
Biomedical scientists understand how the human body works and what goes wrong in diseases, and develop new treatments. They provide the foundation of modern healthcare by working in partnership with doctors, nurses and other healthcare professionals to diagnose disease, evaluate the effectiveness of treatment, and research the causes and cures of disease. Your biomedical science studies at UQ incorporate extensive practical experience in research laboratories where the latest breakthroughs in medical sciences are taking place.

Careers
You will find employment in research institutes, government, education and industry in:
- technical and scientific positions on research projects funded by government and private agencies
- academic and research roles in universities, research institutes and hospitals
- research work in pharmaceutical and biotechnology companies developing diagnostics for disease and new drugs for treatment
- commercial laboratory work in molecular and cellular biology

BSc Major ST LUCIA

BIOPHYSICS

What you will study
Biophysics is at the crossroads of biology, physics, chemistry, mathematics and engineering. Biophysicists typically use their knowledge of physics to study the structure and function of biological molecules, cells and organisms; or they develop and build new instruments and tools for research and biomedical purposes. Biophysics also encompasses fields like bio-molecular modelling, crystallography, spectroscopy, radiology, medical physics, ultrasound, and nanotechnology. You will undertake practical experiences using state-of-the-art scientific equipment, and courses from a range of fields. You may also complement your knowledge with studies in business, arts or engineering through a dual program. You will build your technical skills by undertaking a range of fields including physics, chemistry, mathematics, neuroscience, physiology, biochemistry, and structural biology. You can develop your interests across different areas including:
- Biophotonics – using spectroscopic techniques to understand biological systems including the determination of protein and DNA structure as well as medical imaging and diagnostics.
- Molecular machines – studying cellular components and molecular machines at an atomic level.
- Biomolecular modelling – using computational techniques to calculate and predict the properties of biomolecules crucial in areas such as drug design, understanding enzyme process and modelling energy transduction.
- Ion channels and electrophysiology – studying the process within cell membranes crucial to the workings of biological systems (e.g. ion channels in the nervous system and muscles).

Careers
With your interdisciplinary training, you will find employment in:
- universities and research centres
- pharmaceutical and cosmetological industries
- hospitals working with Computer Assisted Tomography (CAT) scans and Magnetic Resonance Imaging (MR)
- government departments as advisors assisting governments to understand rapid scientific development
- development of medical instruments
- biotechnology industry and research.
What you will study

Chemical science exploits the strong connections between chemistry and the biological sciences, materials sciences and nanosciences. During your studies you will be introduced to some of the most dynamic and rapidly expanding areas of research in the chemical sciences. You will be taught by interdisciplinary teams of scientists at UQ who work collaboratively with scientists across the world.

The Biological Chemistry stream will teach you about the molecular processes that occur in biological systems. You will also learn core chemical principles and how they can be used in essential pharmaceutical and medical research.

The Nanotechnology stream will expose you to the chemical principles at the heart of nanotechnology to develop your understanding of how to better design and engineer structures at the nanoscale. Nanotechnology is playing an increasingly important role in the life sciences, biotechnology, the electronics industry and materials science through the development of nanomedicines, nanoelectronics, energy production devices and other consumer goods.

Careers

There is high demand for scientists with comprehensive, highly developed multidisciplinary skills and expertise in the chemical sciences, both in Australia and overseas. Your skills will be highly sought after in the pharmaceutical and medical research fields, biotechnology sector, materials manufacturing and development companies. Your expertise also provides the perfect platform for a research career at the interface of chemistry and biology or chemistry and materials sciences.

This major is accredited by the Royal Australian Chemical Institute.

What you will study

Chemistry involves analysing the structure and properties of molecules and the energy changes that take place during chemical reactions. The principles of chemistry underpin sciences such as biochemistry, engineering, food science, materials science, nanotechnology and pharmacy.

During your first year, you will learn the fundamentals of general, physical, organic and inorganic chemistry. Courses in your second and third years are in more specialised areas:

- Synthetic chemistry – exploring the synthesis of complex molecules with uses as drugs, explosives, and in formulation of paints and cosmetics.
- Polymer chemistry – studying polymers with uses in electronic devices and in medicine.
- Computational chemistry – using high-level theoretical calculations and powerful supercomputers to understand and predict the structures and reactivities of molecules and short-lived intermediates.
- Surface chemistry – exploring the chemistry at interfaces and applying it in catalysis and nanotechnology.
- Spectroscopy – with applications in analytical chemistry, biology, physics, astronomy and remote sensing, this area examines the interactions between matter and electromagnetic radiation to determine chemical structures and monitor chemical reactions.

You will have access to advanced instrumental techniques to build skills that employers value in chemistry graduates.

Careers

As one of the most versatile majors you can study, you can choose to follow either a generalist career or a specialist career in research or industry.

You will find employment in diverse roles such as a chemist, materials scientist, environmental scientist, biochemist, toxicologist or a forensic scientist. Jobs outside the lab include scientific journalist, quality assurance manager, pharmaceutical sales representative, patent examiner, teacher, and roles in marketing and conservation.

This major is accredited by the Royal Australian Chemical Institute.
What you will study
This interdisciplinary field uses skills from mathematics and information technology to solve scientific problems through computation. Computational scientists collect and process large amounts of data and design sophisticated models and simulations to create new knowledge. As Computational Science is only available as a dual major, you can choose a compatible single major from within the BSc and combine it with Computational Science. This allows you to study additional courses in information technology, mathematics and computational methods to further develop your computational and quantitative skills. Potential combinations with Computational Science include:
• Biochemistry and Molecular Biology
• Biomedical Science
• Chemistry
• Computer Science
• Ecology
• Genetics
• Geographical Sciences
• Geological Sciences
• Marine Science
• Mathematics
• Microbiology
• Physics
• Plant Science
• Psychology
• Statistics
• Zoology.

Careers
With your specialist knowledge and skills, you will have a competitive employment advantage in industry. You will work in roles such as a theorist, researcher and/or inventor where you will apply your theoretical expertise and innovation to complex problems and the creation of new technologies in areas such as genome research, molecular and microbial sciences, and bioinformatics, as well as scientific research and analysis in biology, mathematics, computer science, visualisation and computational methods, and also in the construction and maintenance of large scale simulations and models, especially in the business, finance, engineering and government sectors.

What you will study
Computer science combines problem-solving, computation and information. Computer scientists advance our fundamental understanding of computing, develop new and improved problem solving techniques and design more efficient and powerful computing devices and technology. You will study a core set of computing courses with the added flexibility of combining this with courses from other areas of science and across the University. In your first year, you will study foundational courses in programming/software engineering, information systems and discrete mathematics. The second and third year of the program provide you with more specialised courses in areas such as computer systems, human-computer interaction, algorithms and data structures, artificial intelligence, computer networks and information security. Take advantage of these opportunities to work on both major individual and team projects with exposure to real-world problems from industry and other areas of science.

Careers
There is a high demand for graduates with computing skills across a wide range of career paths:
• computer programmers in health and scientific industries with expertise in analysing and simulating massive data
• software programmers and online network specialists working in music, computer games, media and retail industries
• information security specialists in finance and commerce sectors
• programming and computer systems experts in government sectors.

Many BSc graduates also enter into further research-based studies in honours, master and Doctor of Philosophy (PhD) Programs. Computer Science is also available as an extended major.
### ECOLOGY

#### What you will study
As an ecologist you will study the interaction of organisms and their environments to find solutions for environmental problems such as climate change and using resources sustainably. You will access state-of-the-art field equipment and conduct ecological research at world-class field stations to become highly proficient at analysing and interpreting data – a skill that is invaluable regardless of what career you choose.

Your studies will include behavioural ecology, physiological ecology, population and community ecology, conservation ecology, landscape ecology and evolutionary ecology. You will gain first-hand practical experience in solving ecological problems in a range of environments – from the rainforests of Lamington National Park and the open plains of outback Queensland, to the beaches, waters and reefs of Fraser Island, Heron Island on the Great Barrier Reef, and Stradbroke Island in Moreton Bay.

You can choose to specialise in the following areas:
- Terrestrial Ecology – recommended for a career in natural resource management, consultancy, conservation biology or research in terrestrial ecology.
- Marine Ecology – recommended if you want a career in fisheries management, marine parks, environment consultancy or the Environmental Protection Agency (EPA), or fundamental research in marine ecology.
- Evolutionary Ecology – recommended for employment in federal government agencies such as CSIRO; State agencies such as the Department of Agriculture, Forestry and Fisheries or the EPA; or in research at universities.

#### Careers
Employment for environmental scientists and ecologists with an understanding of the ecological principles of natural resource management has risen strongly in the past five years, which means you will graduate in high demand for roles in:
- government departments and agencies, including CSIRO
- private industry as an environmental officer
- the expanding area of environmental impact assessment
- consultancies for industry, community and non-government organisations
- postgraduate studies in ecology and evolution.

### FOOD SCIENCE

#### What you will study
Food scientists apply basic chemical and biological sciences to ensure the quality, safety, nutritive value, processing and storage of food.

Firmly based in chemistry, biochemistry, biotechnology, microbiology and biometry, it is the science underpinning the food industry, the largest manufacturing industry in Australia. You will learn all the technical aspects of foods from ‘farm to fork’, including the development of new food products and the processes to produce these foods, the packaging materials for optimal storage and transport, how to conduct shelf-life studies and sensory evaluation of products with consumer panels, and microbiological and chemical testing of products for consumer safety.

Food science is a highly interdisciplinary science incorporating microbiology, chemical engineering and biochemistry. As a food scientist you will deal with issues such as food safety, product development, the industrial processes used to manufacture food, food preservation, food technology, packaging, molecular gastronomy and sensory analysis. You will learn the processes involved in developing, producing and evaluating new foods, examine the causes and prevention of foodborne illnesses, learn the methodologies for microbiological and chemical testing of food, and discover the causes and prevention of quality degradation.

#### Careers
You will be in demand from Australia’s largest manufacturing industry, and find employment in:
- food technology
- process and product development
- food microbiology
- food standards and policy
- production management
- quality assurance
- research and development
- technical sales and marketing.

Food Science is also available as an extended major.
What you will study
From the obesity epidemic to specialised diets that promote health and wellbeing, the study of nutrition and the foods we eat is integral to the health and longevity of our society. The food system is not only concerned with on-farm production, off-farm food processing, and distribution of produce for sale, but also the selection and consumption of food by the consumer including the effects of food on their health.

You will study all aspects of the food system from ‘farm to fork’, including basic food processing principles, shelf-life studies and sensory evaluation of products with consumer panels, as well as the microbiological and chemical testing of products for consumer safety. You will examine the psychological, sociological and cultural factors that influence food choice and the effect of these factors on consumer health. Learn the physical nature and chemical composition of food so you can understand how food behaves under different conditions of processing and storage, and use this information to improve the safety and quality of food as well as extend the range of products available.

Careers
As a food and nutrition scientist you will be in demand across the world due to the ongoing need to provide safe and nutritious food to the increasing global population.

You will work in roles such as:
• community nutrition and education
• food policy

Careers
As a geneticist, you will apply genetic principles to diagnose, treat, prevent and cure illnesses in animals, plants and humans, to understand and manage the diversity of life on Earth, provide security for agriculture and food production and the development of new technologies.

Lectures from experts and your practical classes will prepare you to apply this knowledge to genetic disease, the development of personalised medicine, the breeding of livestock and crop improvement to address food shortages and disease susceptibility.

Study your Genetics major on its own or combine it with mathematics, computer science or any other biological major to bring a broader perspective to your studies.

Careers
Career choices for geneticists are some of the broadest available in the biological sciences, ranging from ecology and genome research to medicine and agriculture.

You could work in roles such as:
• molecular geneticist in laboratories around the world, interacting closely with chemists, biochemists and microbiologists
• conservation geneticist studying the genetic diversity in endangered species populations, facilitating the development of breeding programs and conservation efforts to prevent their extinction
• biotechnologist using genetic engineering to manipulate life at the molecular level to generate products to make our lives better, ranging from vaccines to genetically modified foods.
SCIENCE 2018

GEOGRAPHICAL SCIENCES

What you will study
Geographical scientists use the spatial patterns of physical and human phenomena on local, regional and global scales to examine the change and interaction of patterns and processes of natural and built environments and human activity.

To prepare you to work as a geographical scientist you will study a combination of physical geography, human geography and geographic information science (GIS).

Physical geography courses examine the patterns and processes seen in systems involving climate, landforms, soils, plants and animals - as well as the effects of human activities on these systems. Human geography investigates how people interact with the environment and how physical geography is used for human purposes. GIS courses will prepare you to use geographic information systems to model, manage, analyse and apply geo-referenced information.

You can specialise in areas such as earth systems science, climatology, biogeography and landscape ecology, hydrology and geomorphology, marine and coastal systems, society and the environment, urban and economic geography, demography, and geographical information science.

International field studies in New Zealand and Hong Kong allow you to conduct a comparative study of contemporary society, demography, and environmental and planning issues in these destinations.

Careers
You will be in demand in Australia and globally for roles in:
• natural resource management
• national parks and wildlife conservation
• ecotourism
• planning the delivery of human services (health, infrastructure)
• environmental consultancy
• environmental monitoring and pollution control
• teaching and research
• meteorology
• GIS.

At the end of your program, you can choose to undertake honours for an additional year to enhance your industry employment opportunities with additional project management and communication skills, or to prepare for a career in research.

GEOLOGICAL SCIENCES

What you will study
Geologists study the interacting systems of the solid Earth, atmosphere, hydrosphere, and biosphere as they evolve through time to discover, develop and responsibly manage minerals, energy, and other Earth resources. Geology is essential in solving environmental challenges such as managing water resources, understanding global climate change or identifying geohazards.

Your core courses in geology, chemistry, mathematics and physics will provide the foundation for your study of fundamental geologic methods and problems, which you will apply both in the laboratory and in the field. Specialise in economic geology, mining geology, energy resources, geophysics, environmental geology, geochemistry, palaeobiology, marine geology, surficial processes and landscape evolution, tectonics, and remote sensing. Depending on your career interests, choose one of these three recommended study plans:
• Minerals and Energy – to work as a professional geologist in the exploration and mining industries.
• Environment and Marine – to work in environmental geosciences, marine geology, climate change, hydrogeology, and geochemistry.
• Exploration Geophysics – to work as a professional geophysicist in resource and engineering companies, international geophysical contractors, government or research organisations.

Your lecturers bring expertise from industry and global research collaborations to ensure you receive current, industry-relevant knowledge.

Choose to study the Geological Sciences extended major or broaden your focus to include other science disciplines. You will have the option of completing advanced courses in field geology, culminating with a trip to the Mt Isa region. Field and laboratory based projects during an additional honours year of study will continue to solidify your geologic skills and provide essential training for independent research and project management.

Careers
Long-term employment prospects are very strong. Areas such as exploration for energy resources, minerals and water, environmental planning, engineering, and the disposal of hazardous waste all require skilled geoscientists.

Geological Sciences is also available as an extended major.

Both the single and extended majors have accreditation with the Australian Institute of Minerals and Metallurgy.
What you will study
Marine biologists investigate the biology of marine organisms and the physical aspects of marine science such as currents, waves and the processes of marine environments. In your studies you will draw on disciplines such as marine ecology, zoology, botany and genetics to study life in the oceans and other salt water environments, such as estuaries and wetlands. You will develop a breadth of specialised knowledge of marine biological systems and the application of ecological and environmental strategies to protect these systems. With one of the largest marine research groups in Australia, your studies will be enriched by the input of researchers at the forefront of this dynamic discipline.

Courses in your second year will build core knowledge in the biological sciences and prepare you for specific courses in marine biology in your third year. You will participate in field trips to UQ’s Heron Island Research Station on the southern Great Barrier Reef and the Moreton Bay Research Station on North Stradbroke Island, and experience both tropical and subtropical environments. You will gain and apply practical laboratory skills and scientific knowledge to prepare you for a broad range of employment opportunities.

Careers
You can work in many areas of research and education including:
• engineering and consulting companies
• the fishing and aquaculture industries
• marine parks
• ecotourism
• marine resource development
• marine science institutes
• museums
• oil companies
• pharmacology
• planning and management
• power-generating authorities
• teaching
• universities
• wildlife conservation.

Marine Biology is only available as an extended major.

BSc Major ST LUCIA

MARINE SCIENCE

What you will study
As a marine scientist you will examine oceans and coastal habitats, using biological, chemical and physical sciences. At UQ, you will experience how marine science researchers explore global changes in physical processes on coasts and in coastal oceans, using biology and ecology to monitor fish and fisheries and aquatic organism health and disease. You will expand your knowledge of marine molecular biology, biotechnology and biodiscovery, marine neuroscience and marine mammals.

You will access the largest marine research facilities and the largest assembly of marine scientists in Australia to gain extensive practical research experience, interact with world-renowned research scientists, and visit field stations and laboratories including UQ’s Heron Island Research Station on the southern Great Barrier Reef and the Moreton Bay Research Station on North Stradbroke Island.

Depending on your career interests you can specialise in one of the following areas:
• Marine Biology – to understand the biology of marine microbes, plants and animals, the behaviour, physiology, and biochemistry of marine organisms, and the functioning of, and interactions within, marine communities.
• Marine Geology – to develop broad skills in physical sciences necessary to tackle the most pressing concerns facing industry and coastal and marine environments.
• Coastal Environments – to gain expertise in a range of disciplines, including geomorphology, climatology, ecology, coastal processes, remote sensing, planning and management.

Careers
In Australia, marine-based industries are worth more than $16 billion annually and offer a diverse variety of job opportunities in:
• engineering and consulting companies
• the fishing and aquaculture industries
• food technology
• marine parks
• ecotourism
• marine resource development
• marine science institutes
• museums
• oil companies
• pharmacology
• planning and management
• power-generating authorities
• teaching
• universities
• wildlife conservation.

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You will access the largest marine research facilities and the largest assembly of marine scientists in Australia to gain extensive practical research experience, interact with the forefront of this dynamic discipline.

Courses in your second year will build core knowledge in the biological sciences and prepare you for specific courses in marine biology in your third year. You will participate in field trips to UQ’s Heron Island Research Station on the southern Great Barrier Reef and the Moreton Bay Research Station on North Stradbroke Island, and experience both tropical and subtropical environments. You will gain and apply practical laboratory skills and scientific knowledge to prepare you for a broad range of employment opportunities.

Careers
You can work in many areas of research and education including:
• engineering and consulting companies
• the fishing and aquaculture industries
• marine parks
• ecotourism
• marine resource development
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• museums
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• teaching
• universities
• wildlife conservation.
MATHEMATICS

What you will study
Mathematics is one of the most enduring fields of study, and is essential in an expanding number of disciplines and professions. As a mathematician you will develop new ideas and proofs and apply your modelling skills with the latest computer technology to solve problems in the physical and biological sciences, engineering, information technology, economics and business. You can study mathematics as part of a dual degree or in combination with another major in the BSc, to excel in the mathematical aspects of your chosen discipline.

In your first year you will study essential topics in calculus, linear algebra, discrete mathematics and differential equations. From second year, you will select more specialised courses that emphasise new ideas in mathematics and include recent applications in fields such as coding and cryptography, mathematical physics, mathematical biology, bioinformatics and finance. You can choose to specialise in one or more of the following fields:
- Pure Mathematics
- Applied Mathematics
- Financial Mathematics
- Mathematical Physics.

Careers
You will be sought by employers for your excellent quantitative skills and problem solving abilities. You can work in operational research or financial mathematics in banking, finance, insurance and risk management, and in areas such as:
- environmental, physical and biomedical sciences
- engineering
- defence
- university teaching and research

Mathematics is also available as an extended major.

SAMPLE COURSES

Abstract Algebra and Number Theory
Advanced Calculus and Linear Algebra I
Advanced Calculus and Linear Algebra II
Algebraic Methods of Mathematical Physics
Coding and Cryptography
Differential Geometry
Discrete Mathematics I
Discrete Mathematics II
Financial Mathematics
Functional Analysis
Graph Theory and Design Theory
Mathematical Biology
Numerical Methods in Computational Science
Operations Research and Mathematical Planning
Partial Differential Equations

MICROBIOLOGY

What you will study
Microbiologists study microscopic living organisms such as bacteria, viruses, fungi, algae and protozoa to investigate their impact on all aspects of life. You will discover how well-known diseases caused by microbes involve viruses (such as influenza and HIV), bacteria (meningococcus, Staphylococcus, E. coli) and protozoa (such as malaria). You will also learn how to apply this knowledge across diverse fields such as medicine, food technology, agriculture and environmental management.

During your studies, you will learn from some of the leading microbiologists in education and research in Australia. Your studies will encompass knowledge from these key areas:
- Immunology – how humans and animals respond to the challenge of disease-causing organisms.
- Virology – non-cellular viruses that cause human and animal disease.
- Parasitology – parasitic organisms that cause diseases in humans and animals using many of the same molecular approaches as bacteria and viruses.
- Environmental Microbiology – use of micro-organisms to remove pollutants and the roles that micro-organisms play in greenhouse gases like carbon dioxide and methane.
- Microbial Biotechnology – harnessing bacteria and other microbes for industrial and commercial purposes.
- Microbial Genomics – using gene sequencing to understand microbial communities such as those in the human intestine.

Careers
You will find employment in roles such as a:
- research microbiologist at universities, biotechnology companies and agricultural, medical and veterinary institutes
- industrial microbiologist checking the purity of food and beverages or the management of waste treatment
- transport and logistics
- teaching (when combined with a teaching qualification).

Visit the Australian Mathematics Society’s careers website at austms.org.au/ Job opportunitites for an up-to-date list of current job vacancies in mathematics in Australia. See also careers.amsi.org.au

SAMPLE COURSES

Advanced Immunology
Arthropods and Human Health
Biochemistry and Molecular Biology
Biomedical Parasitology
Cell Structure and Function
Chemical Biology
CSI UQ: Introduction to Forensic Science
Fungi and Plant Diseases
Genes, Cells and Evolution
Genetics
Microbes and Human Health
Microbial Genomics
Microbiology and Immunology
Molecular Microbiology
Virology

After graduation you may choose to enter into additional research-based studies in honours, master and Doctor of Philosophy (PhD) programs.

• clinical microbiologist in hospitals using advanced diagnostic technology to detect and identify microbes causing infectious diseases
• microbiologist in government agencies in specialist areas such as forensics, biosecurity and quarantine.
What you will study

As a plant scientist you will be tackling some of the most important global problems facing the world today, including food security, global warming, dependency on fossil fuels and feeding the global population. Your challenge will be to increase global food production by 70 per cent by 2050 to match population growth using sustainable solutions. During your studies you will be exposed to initiatives that include breeding high-yielding, pest-resistant crops and producing biofuels and biomaterials from plants that have potential to limit carbon emissions.

Careers

You will be in global demand by employers such as multinational companies, universities, government departments, research institutes, tissue-culture laboratories, seed companies, mining companies, plant nurseries, landscape designers and environmental consultants in roles such as:

• researcher

PLANT SCIENCE

What you will study

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Careers

You will be in global demand by employers such as multinational companies, universities, government departments, research institutes, tissue-culture laboratories, seed companies, mining companies, plant nurseries, landscape designers and environmental consultants in roles such as:

• researcher

SAMPLE COURSES

Advanced Multivariate Calculus and Ordinary Differential Equations
Calculus and Linear Algebra
Computational Physics
Dynamics, Chaos and Special Relativity
Electromagnetism and Modern Physics
Electronics and Circuit Theory
Extragalactic Astrophysics and Cosmology
Fields in Physics
Foundations of Biophysics
Mechanics and Thermal Physics I
Quantum Physics
Statistical Mechanics
Thermodynamics and Condensed Matter Physics

• health and medical sector
• nuclear physics.

You can also complete higher-level degrees and work in research and development to increase scientific knowledge, or applied research to develop new devices, products or processes.

Physics is also available as an extended major.

SAMPLE COURSES

Cells to Organisms
Ecology Field Studies
Evolution
Fungi and Plant Diseases
Genes Cells and Evolution
Global Challenges in Biology
Plant Biology
Plant Biology II
Plant Identification and Vegetation Classification
Plant Microbe and Insect Interactions
Plant Molecular Biology and Biotechnology

• consultant
• teacher (when combined with a teaching qualification)
• ecologist
• biotechnologist
• conservationist
• molecular biologist
• marine biologist
• physiologist
• plant breeder
• pathologist
• horticulturalist.

After graduation you may choose to continue into further research-based studies in honours, master and Doctor of Philosophy (PhD) programs.
What you will study
Psychology is the scientific study of how people behave, think and feel, and examines brain function, memory, conscious experience, lifespan development, social behaviour and the range of functional and dysfunctional behaviour. You will develop superior analytical skills and understand how to apply the scientific perspective to psychological phenomena in the laboratory and in the real world. Your courses provide a strong foundation in all sub-disciplines of psychology including neuroscience, learning and cognition, developmental psychology and social psychology, and scientific methods and statistical techniques used in psychological research. You will develop an in-depth understanding of the issues and some proficiency in conducting psychological research and interpreting the findings.

Careers
Your combination of science and psychology studies will give you a competitive edge with employers. You may enter professions that require superior analytical and thinking skills such as human resources, mental health, counselling and corrective services. With further training you may become a registered psychologist who practises in a specialisation such as clinical psychology, clinical neuropsychology, counselling psychology, health psychology, organisational psychology, or sport and exercise psychology. Psychologists work in a range of settings, including private practice, hospitals, government agencies and corporations. To gain full registration as a psychologist with the Psychology Board of Australia you should complete a Psychology extended major in your undergraduate degree, before completing further studies. To find out more about psychology at UQ visit psy.uq.edu.au

After graduation you may also choose to enter into further research-based studies in honours, master and Doctor of Philosophy (PhD) programs. Psychology is also available as an extended major.

What you will study
Public health professionals focus on preventing disease, prolonging life and promoting health. As a public health professional you will apply your multidisciplinary understanding of health to explore and examine the basis of disease and well-being by considering the vagaries of human behaviour, the physical environment, the socio-economic and cultural determinants of health, and the systems of health care management. Your studies will provide you with a broad overview of public health and the critical issues it confronts. You will learn how to measure, plan, manage and evaluate health programs and services to prevent illness and promote good health in communities. You will examine the foundational disciplines of public health, including epidemiology, biostatistics, health systems, environmental health and social sciences. You will gain a broad understanding of health and disease and the systems in which you will work.

Careers
You will find employment in the public health sector, working with government, non-profit or private health-based organisations. Whether you want a clinical role, to prevent illness in the community, or to work behind the scenes in the business of health, this degree is your pathway to a rewarding career. Non-clinical careers focus on preventing illness and disease where you can use your skills in the assessment, management, planning and delivery of efficient, quality healthcare, such as:

- health promotion officer
- community health officer
- project officer
- health service manager or health information officer in hospitals and other healthcare facilities
- community health clinic manager
- community nutritionist
- public health manager
- public health researcher.

On graduation, your studies also provide an excellent pathway into the Master of Public Health or research via an additional honours year and postdoctoral research. Your studies will also prepare you for a clinical career in areas like medicine or allied health.
STATISTICS

What you will study
Statistics is an essential part of science, providing the mathematical language and techniques necessary to understand and deal with chance and uncertainty in nature and human-designed environments. Statisticians design, collect, analyse and interpret data to extract patterns and other useful information. This is integral to all biological and physical sciences as well as fields such as engineering, health sciences, social sciences, economics and marketing.

As a statistician your analyses will be used across a wide range of fields including the prediction of stockmarket fluctuations and insurance claims, modelling the flow of internet traffic and mobile phone calls, assessing drought conditions, population models for endangered species, and to model the spread of disease such as HIV/AIDS, and much more.

During your studies you will learn state-of-the-art statistical techniques and software, and develop a clear understanding of the modern statistical and probabilistic theory behind the methods. You will develop a wide range of skills, including:

• probabilistic reasoning and problem solving
• statistical modelling and analysis
• optimal design of statistical experiments
• advanced data exploration and visualisation
• application of statistical software
• development of statistical algorithms
• report writing and presentation.

Summer vacation research projects will also give you invaluable practical experience and develop your industry connections.

Careers
You will be in high demand in business, industry, research and government. In business and industry, you will work in areas like quality control, and product development and improvement. You may also manage assets and liabilities, and determine the risks and returns of certain investments, forecast sales, analyse business conditions, and help solve managerial problems. You will find employment opportunities within every government department and in many scientific, medical, environmental, defence and agricultural agencies.

You will be eligible for accreditation as a graduate statistician from the Statistical Society of Australia and as you gain more experience you will be eligible to apply to become an accredited statistician.

SAMPLE COURSES

- Advanced Multivariate Calculus and Ordinary Differential Equations
- Calculus and Linear Algebra I
- Experimental Design
- Probability and Statistics
- Probability Models and Stochastic Processes
- Problems and Applications in Modern Statistics
- Statistical Modelling and Analysis

ZOOGOLOGY

What you will study
Zoologists study animals to understand animal evolution and diversity using morphology, development and genetics, behaviour, ecology, physiology, biochemistry and molecular biology of animals.

You will explore the relationships and interactions of animals with their physical and biological environments, and use modern comparative and experimental approaches to investigate the evolution and diversity of animals. To pursue a career as a professional zoologist, you will be guided to choose courses in climate change biology, wildlife and conservation biology, entomology, environmental physiology, marine biology, fisheries biology and aquaculture, terrestrial ecology, molecular ecology and mathematical applications in biology.

You can also choose to study:

• General Zoology – combine the study of animals with other aspects of biology including biostatistics, ecology, evolution, genetics and insect science.
• Entomology – study insects and related organisms.
• Wildlife Biology – study the conservation and management of animals using tools such as radio tracking or molecular and physiological techniques, and design and conduct research projects.

You will gain practical experience to prepare you to work with animals, with field courses offered to the Australian outback, rainforests, Moreton Bay and Stradbroke Island and the Great Barrier Reef.

Careers
While it is unusual to find a job advertisement looking for a ‘zoologist’ specifically, you will find a very large number of career options, ranging from field-based conservation work to forensics or biomedical research. You may find employment in scientific laboratories, with Commonwealth, state and local governments, in national parks, museums, zoos and conservation authorities, with medical laboratories, and in education institutions.
With the world’s population expected to reach 10 billion by 2050, the environmental pressures on our planet have never been greater. Study Sustainable Agriculture and learn how to provide innovative solutions for the distribution of resources and the production of food and fibre to feed and clothe the world.

Why Sustainable Agriculture at UQ?
Study Sustainable Agriculture and acquire scientific and managerial principles, to help commercial farmers sustainably increase their output of food and fibre to feed and clothe the world with the least environmental and social impact.

This three-year program will provide you with the skills and knowledge to help industry tackle some of the big problems facing our planet. With UQ’s position as one of the top-ranked agriculture and biological sciences universities in Australia, you will have access to leading researchers and industry practices and some of the best agricultural teaching facilities available.

What you will study
Acquire the scientific and practical knowledge of the sustainable agriculture industry. During your studies, you can choose to major in agronomy, horticulture or livestock and poultry science. As a working 1068-hectare farm, UQ’s Gatton campus focuses on specialisations supporting Australia’s most extensive agricultural research program with links to local, national and global growers, producers and industry.

Majors
Agronomy
Learn how the environment and agricultural practices can be managed to control the whole plant growth and crop production cycle. As an agronomist, you will utilise a number of scientific disciplines to enhance the production of food, create healthier food, investigate plants as a future energy source, and manage the environmental impacts of agriculture.

Combine your study of biological, chemical, ecological and earth sciences or genetics to examine variables such as crop rotation, irrigation and drainage, plant breeding, plant physiology, soil classification and fertility and the control of weeds, insects and other pests to manage the whole plant and crop production cycle.

Horticulture
Examine the intensive production of fruit, vegetable, nursery and floricultural crops, turf management, and the use of plants to enhance the urban landscape or for recreational and therapeutic benefit. As a horticulturist, you will work to improve plant yield, quality, nutritional value and resistance to insects, diseases and environmental stresses through scientific techniques in plant breeding, biochemistry, physiology and propagation.

Livestock and Poultry Science
Study animal behaviour, microbiology, anatomy and physiology, biochemistry, health, genetics and reproduction that underpin the effective and humane production of animals for food, fibre and pharmaceuticals. You will use the latest technologies in disease control, welfare management, animal environment interactions and product quality. Learn business principles and gain practical skills in applying these through industry placements to ensure the profitable and sustainable management of livestock and poultry.

Bachelor of Sustainable Agriculture
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Dual program
You can study the Bachelor of Sustainable Agriculture as a dual degree with the Bachelor of Agribusiness. The dual four-year program allows you to combine practical business skills with your interests in sustainable agriculture.

Placements and practical experience
Depending on your eligibility, you can choose to undertake an industry placement elective during your summer semester.

Get additional skills
You can also broaden your skill set by concurrently enrolling in the UQ-GVEC Certificate III in Rural Operations or the Farm Ready program through the UQ Gatton Vocational Education Centre (details available at gvec.gatton.uq.edu.au/our-courses).

Careers
The agriculture sector contributes billions of dollars annually to the Australian economy. You will find employment in industries such as:

- government departments
- research institutions such as CSIRO and universities
- agribusinesses such as agricultural service companies, banks, seed companies, food producers and agricultural consultancies
- small- or large-scale organisations involved in production, post-harvest and marketing of horticultural products
- biosecurity, extension and animal production enterprises

- allied industries such as feed milling, stock equipment manufacturers, and livestock and poultry health companies.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Agricultural Science or Agribusiness. See page 64 for more information.

ANGUS DALGLIESH
Bachelor of Sustainable Agriculture student

“Studying sustainable agriculture at UQ has given me a deeper knowledge and understanding of the different types of systems and technology used in today’s farming industry, and how they are constantly changing and evolving. By studying this program, students like myself gain an insight into modern farming methods and practices, which in turn gives us the ability to farm in a sustainable manner in the future.”

For more information
future-students.uq.edu.au
science.uq.edu.au/planner
Bachelor of

VETERINARY

SCIENCE

(HONOURS)

Become a fully qualified and internationally recognised veterinarian through this program. Taught at UQ’s Gatton campus, you will access world-class facilities, teachers, research and knowledge.

Why Veterinary Science at UQ?
UQ’s Bachelor of Veterinary Science (Honours) is a registrable degree program that allows you to practise as a veterinarian. Attracting some of the highest-achieving students from Australia and internationally, this program produces veterinarians who are in high demand around the world.

Veterinary science is vital to the study and protection of animal health and welfare. It requires you to apply scientific knowledge in multiple disciplines and therefore also offers high-quality biomedical training that can be applicable to non-clinical careers, including research.

Veterinarians also play vital roles in protecting human and ecosystems health through principles of ‘One Health’ practice. Their training in trans-boundary diseases and population health are similarly essential for promoting animal productivity and associated industries, and food security.

UQ’s coursework and placement training will provide you with the foundational knowledge and practical skills that you will need to apply medical, diagnostic, and therapeutic principles to companion, domestic, exotic, wildlife, and production animals.

Why Veterinary Science at UQ?

As with North American veterinary graduates, you will be eligible to sit the North American Veterinary Licensing Examination.

What you will study

You will gain the knowledge and skills to work with animals of all kinds with respect to their health, welfare and management. Studies commence with foundational training in the anatomy, physiology, biochemistry, nutrition and behaviour of healthy domestic and wild animals. From the beginning of the program, you will engage in clinical and laboratory practical training, as well as in the handling and husbandry of animals. You will be introduced to key concepts around the diseased animal, and will acquire a detailed knowledge of animal pathology and skills in diagnostic methods. This is coupled with introductory training in the art of clinical examination and diagnostic process, linking how various disease processes manifest and are recognised.

This introduction to clinical science transitions within the fourth year of the program into dedicated medicine and surgery courses for each of the major animal species, including population and public health training. The final year is entirely clinically oriented, with you undertaking lecture-free training within the university and privately owned practices.

Professional skills training is woven throughout the program, providing training in essential clinical and professional competencies such as communication, business skills and self-development.

You will also undertake scheduled periods of extramural studies, that involve work-integrated learning external placements on farms and other animal management

PATHWAYS TO THIS PROGRAM

Pathways to the UQ Bachelor of Veterinary Science (Honours):

Entry to this program is quota-based and highly competitive. A possible pathway to study this program is through studying one of the following programs on our Gatton campus:
- UQ Bachelor of Equine Science
- UQ Bachelor of Science
- UQ Bachelor of Veterinary Technology
- UQ Bachelor of Wildlife Science

Contact enquire@science.uq.edu.au for more information.

2017 OP RANK ATAR

Duration 5 years full-time
Location Gatton
Entry requirements Queensland Year 12 (or equivalent) English, Chemistry, and Maths B; plus Physics or Biology
QTAC code 736002
Program code 2378
Delivery mode Internal
International availability Yes (CRICOS Code 082631A)
International students must study on a full-time basis
English proficiency for international students IELTS overall 7, writing 6, reading 6, listening 6, speaking 7. For other English Language Proficiency Tests and Scores approved for UQ, view the English proficiency policy at future-students.uq.edu.au/english-requirements

HONOURS
Available as part of the standard program

OP2 RANK 98.50 ATAR 98.75

Australia’s only fully internationally

ACCREDITED undergraduate
Veterinary Science program
Placements and practical experience

Gain practical, hands-on experience in the state-of-the-art teaching, hospital and research facilities at UQ’s outstanding Gatton campus. From the Small Animal Hospital to the Equine Specialist Hospital, you will receive essential experience to become confident and job-ready on graduation. Undertake preclinical and clinical practical work in specialist practices and on farms, veterinary clinics and other animal health enterprises to refine and professionally inform your expertise.

Beyond the formal curriculum, you will have the opportunity to participate in summer or winter research scholarship programs in the UQ School of Veterinary Science. You may also choose to develop your skills through volunteering in animal and clinical facilities within the school and on campus.

Careers

Upon graduating, you will be a fully qualified veterinarian and will be able to work as a general practitioner in veterinary clinical practice in Australia and a range of other countries.

You will be qualified for employment in many sectors, including as:

- a government biosecurity officer
- a consultant for animal production and disease control
- a veterinarian in industry (especially pharmaceutical and biotechnology industries)
- an educator and/or researcher with universities and governments
- a government department veterinarian dealing with animal disease control and efficient animal production.

Postgraduate options

Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Veterinary Science. See page 64 for more information.

PRAC ACTIVITY

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<tr>
<td>Pre-clinical extramural studies*</td>
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<tr>
<td>Clinical extramural studies</td>
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<td>Fourth year clinical practical work</td>
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<td>Fifth year clinics</td>
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<td>Practicals years 1-3</td>
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* Extramural studies: Studies located or taking place off campus
Bachelor of VETERINARY TECHNOLOGY

Equip yourself with the theoretical and practical skills to become a para-veterinary healthcare specialist, working in animal health and welfare.

Why Veterinary Technology at UQ?

Acquire skills as a para-veterinary specialist by learning from internationally regarded academics while accessing world-class animal health facilities. You will gain the expertise required for employment within the veterinary industry in areas such as veterinary practice, animal health, biosecurity, veterinary pharmaceutical companies, animal nutrition companies, government agencies, research institutions and the livestock sector.

Most importantly, a veterinary technology degree will equip you with the attributes of critical thinking, problem solving and self-directed learning, which will prepare you for supervisory and management roles in a range of fields.

What you will study

Study animal handling and care, welfare and behaviour, applied and clinical nutrition, mechanisms of animal disease and diagnostic techniques, clinical aspects of small and large animal health, veterinary pharmacology and therapeutics, veterinary surgical and medical nursing principles, and veterinary practice management.

During your studies, you will undertake clinical rotations and participate in industry placement programs in locations such as vet clinics, vet hospitals, wildlife parks, government agencies, welfare organisations, animal breeding enterprises, research facilities and pharmaceutical companies. As you progress through the program, you can choose from a wide range of elective courses to broaden or focus your skills or to pursue an area of interest.

Dual program

You can study the Bachelor of Veterinary Technology as a dual degree with the Bachelor of Agribusiness. The dual four-year program allows you to combine practical business skills with your interests in veterinary technology.

Placements and practical experience

You will access state-of-the-art teaching, hospital and research facilities at UQ’s outstanding Gatton campus. From the Small Animal Hospital to the Equine Hospital, you will receive essential hands-on experience throughout the program to become confident and job-ready on graduation. Industry and clinical placements beyond UQ – such as vet clinics, vet hospitals, wildlife parks, government agencies, welfare organisations, animal breeding enterprises and pharmaceutical companies – will give you additional functional work experience and add to your expertise.

These placements are also great opportunities to establish industry contacts and gain current, industry-relevant experience.

Beyond the formal curriculum, you have the opportunity to participate in summer or winter research scholarship programs in
UQ’s School of Veterinary Science. You may also choose to develop your skills through volunteering in animal and clinical facilities within the school and on campus.

During the program, you will gain at least 80 hours of practical sessions in your first and second years, and extramural studies* of 30 days. In your third year, you will complete a six-week industry placement in any approved veterinary-related field.

### Get additional skills

You can also broaden your skill set by concurrently enrolling in the UQ-GVEC Certificate IV in Veterinary Nursing, the UQ-GVEC Certificate III in Rural Operations or the Farm Ready program through the UQ Gatton Vocational Education Centre (details available at gvec.gatton.uq.edu.au/our-courses).

### Careers

You will find employment in roles and fields such as:
- support staff in veterinary practices (providing general, specialist, emergency and critical care), including veterinary practice management
- animal behaviour and training instructor
- animal management officer with local councils
- animal research technician and supervisor
- biosecurity inspector and project support with government agencies
- clinical academic in higher education (veterinary nursing)
- regulatory affairs officer for veterinary drug and product registration
- teacher/trainer in vocational training and education (veterinary nursing)
- veterinary clinical nutrition technician
- veterinary laboratory scientist
- veterinary pharmaceutical representative.

Undertaking an honours year in either a research or clinical stream could lead you to postgraduate studies.

### Postgraduate options

Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Veterinary Science. See page 64 for more information.

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*S Extramural studies: Studies located or taking place off campus

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**SARAH DUNCAN**

Bachelor of Veterinary Technology student

I chose UQ because I trust the reputation it has built for itself over many generations. My father attended UQ, three of my siblings attended UQ and I had no doubt in my mind that it would prepare me for my future just as well as it did them.

The thing I love most about studying Veterinary Technology at UQ Gatton is that the campus holds everything you need for a well-rounded experience. It has its own dairy, poultry and equine units, and herds of sheep and goats, as well as its own piggery, small animal and equine hospitals, a Clinical Studies Centre and plenty of research facilities. When combined, all these facilities give you access to everything that you would need in your studies. You learn about animals one day and the next morning they’re standing in front of you and you can apply your knowledge. Each piece of information given to you is connected to a practical exercise, which serves to reinforce the relevance of the degree.

---

**SAMPLE COURSES**

- Agricultural Biochemistry
- Animal Anatomy and Physiology I
- Animal Anatomy and Physiology II
- Animal Behaviour, Handling and Wellbeing
- Animal Health Technology
- Animal Nutrition
- Animal Pathogens and Immunity
- Applied Mathematics and Statistics
- Chemistry
- Large Animal Health and Management
- Preparation for Professional Practice
- Professional Studies for Veterinary Technology
- Small Animal Health
- Surgical Principles and Practices

**Recommended Electives**

- Equine Exercise and Rehabilitation
- Dogs, Cats and Other Pets
- Mechanisms of Animal Disease
- Molecular and Quantitative Animal Genetics
- The Behaviour and Management of Animals in Society
- Veterinary Laboratory Diagnostics for Veterinary Technologists

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For more information
future-students.uq.edu.au
science.uq.edu.au/planner
Bachelor of WILDLIFE SCIENCE

Build expertise in animal biology and the conservation and management of wild animals. Study native and exotic amphibians, reptiles, birds and mammals, biodiversity, and human-wildlife interactions.

Why Wildlife Science at UQ?

This hands-on degree focuses on animal biology and the management of wild animals. As one of the world’s top universities, UQ is already a leader in this field with the best specialist animal research and veterinary facilities in the southern hemisphere. You will study with UQ Gatton’s wildlife scientists, who are involved in the conservation and management of non-captive and captive wildlife as well as rare or exotic animals in Australia and overseas. You will learn from biologists as they focus on wildlife anatomy and physiology, captive breeding, reproduction, nutrition, health, husbandry, ecology, welfare and behaviour.

As part of your degree, you will also gain hands-on wildlife experience in UQ’s captive breeding facilities.

What you will study

You will gain the expertise to implement and evaluate wildlife management programs for captive and free-ranging wildlife. Develop a deep scientific knowledge of wildlife anatomy and physiology, captive breeding, reproduction, nutrition, health, husbandry, ecology, welfare and behaviour. With excellent wildlife trapping, identification and animal handling skills, you will be able to make a major contribution to the wildlife, game and vertebrate pest management industries in Australia. As you progress through the program, you can choose from a range of electives to broaden or focus your knowledge or pursue an area of interest.

Dual program

You can study the Bachelor of Wildlife Science as a dual degree with the Bachelor of Agribusiness. The dual four-year program allows you to combine practical business skills with your interests in wildlife science.

Placements and practical experience

You will have the opportunity to participate in a minimum of 120 hours of industry placement programs in locations such as zoos, sanctuaries, wildlife parks, government agencies, welfare organisations, and animal breeding enterprises. Industry placements will add to your practical, hands-on work experience. They are also great opportunities to establish industry contacts and gain current, industry-relevant experience.
Get additional skills
You can also broaden your skill set by concurrently enrolling in the UQ-GVEC Certificate IV in Captive Animals, the UQ-GVEC Certificate III in Rural Operations or the Farm Ready program through the UQ Gatton Vocational Education Centre (details available at gvec.gatton.uq.edu.au/our-courses).

Careers
You will find employment in research, managerial and educator roles, including:
• as a biologist
• as a conservation officer in ecotourism
• as a land manager
• in marine resource organisations
• in vertebrate pest and game management
• as a wildlife biologist
• as a wildlife technician
• in government agencies
• in wildlife sanctuaries and zoos.

Postgraduate options
Research higher degrees (MPhil and PhD) in your area of interest are available. Expand your skills by studying one of the postgraduate coursework programs in Conservation. See page 64 for more information.

LAUREN GILLORAN
Bachelor of Applied Science (Wildlife Science) graduate
Dolphin Trainer, Sea World

Anyone passionate about animals and their conservation should definitely study Wildlife Science at UQ. Wildlife Science is so broad that a lot of doors open for you after receiving that qualification - such as working in a zoo, or an aquarium, or working for the government in game management. That’s what drew me to it. For me, working with dolphins or with tigers were two of my long-term goals in life, purely because I know they are difficult fields to get into. In the long-term, I would love to be able to contribute to big cat conservation.
UQ St Lucia

UQ’s St Lucia campus is renowned as one of Australia’s most attractive campuses, just seven kilometres from Brisbane’s CBD.

Bounded by the Brisbane River on three sides, UQ St Lucia a perfect study, research and living environment, combining the vitality of a modern campus with the tradition of an established university.

The campus has expansive landscaped grounds, fanning out from a heritage-listed sandstone cloister that encloses the iconic centrepiece of the campus, the Great Court.

You will find world-class teaching and research facilities at UQ St Lucia, including Queensland’s largest research library plus fully equipped laboratories and lecture theatres. The campus caters to all study and living needs, including excellent sporting venues, museums, art galleries, shops, banks, a post office, cinema, theatre, restaurants and refectories. UQ St Lucia is also a great place to relax and enjoy university life with market days, bands and sporting events.

Research institutes on campus, many with a multidisciplinary focus, include:

• Australian Institute for Bioengineering and Nanotechnology
• Global Change Institute
• Institute for Molecular Bioscience
• Queensland Alliance for Agriculture and Food Innovation
• Queensland Brain Institute
• Sustainable Minerals Institute.

STUDENT LIFESTYLE

Study is only one part of your life as a UQ student. Our easily accessible campuses offer a full university experience, where you will make life-long friends and broaden your horizons by studying, working and socialising with people from all over the world.

Keep fit

UQ Sport offers hundreds of sports and activities at state-of-the-art facilities on both St Lucia and Gatton campuses.

Choose from:
• 70+ sports and activities
• 10+ social sport options
• 40+ sporting clubs

uqsport.com.au
UQ Gatton

UQ offers many of its agriculture, animal, veterinary science and environment programs at the idyllic Gatton campus, which is just over an hour’s drive west of Brisbane.

UQ Gatton’s modern teaching and research facilities contrast with the historic rural traditions of the site’s heritage as an agricultural college.

The campus is five kilometres from Gatton, the largest town and business centre in the Lockyer Valley. Gatton offers a perfect combination of town and country living, with an eclectic mix of restaurants, art galleries, shopping, nature walks, markets, and recreation activities.

Specialist research and teaching facilities at UQ Gatton include:

- a 1068-hectare fully serviced farm
- veterinary teaching laboratories and a Clinical Studies Centre
- a native wildlife teaching and research facility
- the largest solar energy research facility in Australia
- a research dairy
- a teaching and research pig production facility
- nursery and glasshouse facilities
- an eLearning laboratory
- general and specialist research laboratories
- modern lecture theatres and computing laboratories that promote collaborative learning styles
- cropping facilities and field laboratories
- specialist facilities for equine and poultry research.

You can take advantage of a range of medical, welfare, counselling and learning support services on campus, as well as numerous sporting and recreational activities. Campus amenities include a post office, childcare centre, bookshop, dining hall and café, ATM, motel, library, health services, chaplaincy, student centre, student support services, and a licensed club.

The Gatton International Student Association promotes friendships between students from 36 countries and Australian students and staff, fostering an inclusive campus through:

- social events and international food fairs
- field trips to local landmarks such as Mt Tamborine, Stanthorpe and Stradbroke Island.

UQ Herston

Just three kilometres from the Brisbane city centre and adjacent to a major transport hub, Herston is UQ’s core campus for clinical health teaching and research.

Sharing premises with the Royal Brisbane Hospital, Women’s Hospital and the QIMR Berghofer Medical Research Institute, UQ Herston houses a vibrant clinical and research community who deliver innovative and contemporary research and education programs in a clinical academic environment.

Its proximity to a major hospital benefits students and staff and demonstrates UQ’s commitment to working within a clinical academic environment.

Major research institutes on campus include the UQ Centre for Clinical Research, along with other key facilities such as the Oral Health Centre Australia’s largest and most advanced specialist oral health service, and the purpose-built Herston Imaging Research Facility.

Travel between campuses

Free buses between campuses leave at regular intervals each day during semester:

- St Lucia – Herston: 10kms (approx. 20 mins)
- St Lucia – Gatton: 82kms (approx. 70 mins)
- Herston – Gatton: 90kms (approx. 70 mins)

Try something new through some of the social options UQ offers:

- 200+ clubs and societies, ranging from sport and leisure to interests like Quidditch and playing pool
- Check out Market Day or one of the many events run during the start of semester

uqu.com.au
WHERE TO LIVE

Whether you study at Gatton or St Lucia, you will have a range of accommodation options both on- and off-campus.

Arriving and finding accommodation

UQ Accommodation Services provides information and services to assist you in finding a home that’s right for you, and make your arrival as smooth as possible. UQ Accommodation Services offer:

• free information sessions all year
• free tenancy advice
• online resources
• one-on-one appointments with accommodation advisors
• share housing and living skills advice and resources.

We advise all new students who haven’t arranged any accommodation to arrive as early as possible before classes start. Allow at least one month to get organised, arrange inspections, and lodge applications for rental properties.

UQ Rentals

On the UQ Rentals database, you can:

• access hundreds of shared and vacant property listings, ranging from low-cost share houses to high-rise penthouses
• filter for the price and location that best suits your needs.

Visit uqrentals.com.au to explore the database.

Student accommodation providers

A number of independent student-accommodation providers offer a variety of purpose-built and managed housing options.

Visit uq.edu.au/student-services/accommodation/preferred-providers

Colleges at UQ

UQ’s on-campus accommodation consists of 10 residential colleges at St Lucia campus and a Halls of Residence at Gatton campus that are home to more than 3000 students from Australia and overseas.

Aside from the convenience of having every university facility and service only minutes away, colleges offer:

• fully catered accommodation
• supportive staff available 24/7
• academic tutorial programs and peer group support
• strong, lifelong college and professional networks and lasting friendships
• community service opportunities
• active sporting, cultural and social life
• college scholarships, prizes and bursaries.

Discover the other benefits that UQ Colleges can offer you at liveuq.edu.au

<table>
<thead>
<tr>
<th>COLLEGE</th>
<th>CURRENT RESIDENTS**</th>
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<td>Cromwell College</td>
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<td><a href="mailto:stay@cromwell.uq.edu.au">stay@cromwell.uq.edu.au</a></td>
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<tr>
<td>Duchesne College</td>
<td>212 (W)</td>
<td><a href="mailto:duchesne.college@duchesne.uq.edu.au">duchesne.college@duchesne.uq.edu.au</a></td>
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<td><a href="mailto:enquiries@emmanuel.uq.edu.au">enquiries@emmanuel.uq.edu.au</a></td>
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<td>Grace College</td>
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<td><a href="mailto:kings.college@uq.edu.au">kings.college@uq.edu.au</a></td>
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<tr>
<td>St John’s College</td>
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<td><a href="mailto:admissions@stjohns.uq.edu.au">admissions@stjohns.uq.edu.au</a></td>
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<tr>
<td>St Leo’s College</td>
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<td><a href="mailto:enquiries@stleos.uq.edu.au">enquiries@stleos.uq.edu.au</a></td>
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<tr>
<td>Union College</td>
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<td><a href="mailto:union.college@uq.edu.au">union.college@uq.edu.au</a></td>
</tr>
<tr>
<td>The Women’s College</td>
<td>253 (W)</td>
<td><a href="mailto:admin@womens.uq.edu.au">admin@womens.uq.edu.au</a></td>
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<tr>
<td>Gatton Halls of Residence</td>
<td>436 (Mixed)</td>
<td><a href="mailto:halls@uqg.uq.edu.au">halls@uqg.uq.edu.au</a></td>
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</table>

* Resident numbers as at 2016
^ M = Men only; W = Women only; Mixed = All genders

Find out more

Access online resources and free info sessions to help you find and maintain a tenancy:

• check our website for information session times
• watch our information video
• contact one of our team members

accommodation.uq.edu.au
ARE YOU AN INTERNATIONAL STUDENT?

While a lot of information in this guide is relevant to you, certain key information may be different for international students.

You are an international student if you are:
• intending to study on a student visa, or
• not a citizen of Australia or New Zealand, or
• not an Australian permanent resident, or
• a temporary resident (visa status) of Australia.

Eligibility for UQ study
For admission into undergraduate programs at UQ, you must have:
• completed recognised upper secondary or equivalent Year 12 studies to the required standard
• satisfied individual program requirements (e.g. specific subject prerequisites, auditions or interviews)
• satisfied English language requirements. If you do not meet these criteria, you might consider taking the Foundation Year bridging course offered by International Education Services (IES) or English language training offered by the Institute of Continuing and TESOL Education (ICTE-UQ).

Tuition fees
UQ has program-based fees for coursework award programs, meaning that all courses within a program are charged at the same tuition fee rate per unit for a given academic year.

Fee information
W: future-students.uq.edu.au/apply/international/tuition-fees

Other expenses
All international students applying to study in Australia must have a student visa and study full-time, on campus. Please consider expenses such as visa and medical (pre-departure) fees, tuition fees, general living expenses, return airfares, and Overseas Student Health Cover (OSHC) when you plan your budget.

Applying to UQ
How to apply
W: future-students.uq.edu.au/apply

Want more information?
If you would like to know more about your study options at UQ, feel free to ask a question through our enquire online form and one of our UQ advisors will respond to you. Feel free to register for an advisory session, and if you are in Brisbane, why not sign up for a campus tour to see our beautiful campuses?

We also have a range of publications, including the international undergraduate and postgraduate student guides to help you.

Ask UQ
W: future-students.uq.edu.au/ask

Advisory sessions
W: uq.edu.au/international-students/advisory-sessions

Campus tours
W: future-students.uq.edu.au/campus-tours

Program guides

More information
W: future-students.uq.edu.au
icte.uq.edu.au
ADMISSION INFORMATION

You must satisfy prerequisites and have a sufficient entry score (OP or entry rank) to study undergraduate programs at UQ, but there are alternative pathways for entry if you do not meet these requirements.

How to apply

Apply for UQ undergraduate program admission through the Queensland Tertiary Admissions Centre (QTAC).

Check the QTAC Guide or the QTAC website for details on how to apply and what entry requirements you need. Free print copies are given to all current Queensland Year 12 students and some interstate students, or you can buy a copy from QTAC directly.

You may list up to six program preferences, but you will only receive one offer - for your highest preference that you are eligible for. When applying, make sure you place programs in order of personal preference, putting the one you most want to study first, and the one you least desire last.

See the QTAC website for 2017 application deadlines.

QTAC Admissions
W: qtac.edu.au
E: admissions@uq.edu.au
T: 1300 467 822
T: +61 7 3365 2203

TIP: Check that you have met all academic and other entry requirements and have met any specific program deadlines.

There are a range of UQ publications and study area guides available to help you choose the right program for you.

To order a specific publication or guide, visit bit.ly/orderUQguide

The step-by-step process

1. Choose
2. Apply
3. Accept

Search for your program
- Search in this guide on pages 6-55
- Visit future-students.uq.edu.au

TIP: Check that you have met all academic and other entry requirements and have met any specific program deadlines.

Prospective students
- Apply by visiting qtac.edu.au

Current students at other universities
- Apply by visiting future-students.uq.edu.au/apply

TIP: Prior to applying, check that your home institution will give you credit.

How to accept your offer
1. Log in by clicking ‘Applicant login’ at qtac.edu.au
2. Select Login and enter your details
3. Select the Accept offer option
4. Accept your offer
5. Go to uq.edu.au/startingatuq and follow the instructions
Prerequisites
Subject prerequisites are the Queensland Year 12 subjects (or interstate/overseas/tertiary/bridging course equivalents) required for individual programs.
Some programs have additional prerequisites (e.g. auditions or the Undergraduate Medicine and Health Sciences Admission Test (UMAT)).

Entry scores
Entry scores include Overall Positions (OP) and entry ranks. Eligible applicants are selected for admission to a program in order of merit: those with the highest entry score are selected first, and so on until the program quota is filled.
The minimum OP or rank required for entry varies from year to year and is determined once applications have been processed and places allocated. While it is difficult to predict exactly what OP or rank will be needed for entry to a program, you can use the previous year’s cut-offs as a guide.

How to enrol
1. Access your first year planner available at uq.edu.au/startingatuq to find out what you must study
2. Choose your courses (visit myAdvisor at uq.edu.au/myadvisor for help)
3. Enrol online via mySI-net at sinet.uq.edu.au
4. Plan your timetable and sign-on to classes
5. Pay fees

Preparing for Week 1
• Research your course resources
• Come along to Orientation Week for fun activities and information about your courses
• Get your student ID card
• Attend faculty or school information and welcome sessions
• Get any remaining questions answered before classes start (visit future-students.uq.edu.au/ask)

Special entry programs
If you identify on your QTAC application as being of Aboriginal and/or Torres Strait Islander descent you will be invited to apply via the ATSIS alternative entry scheme for a place at UQ. This option takes into account more than just your OP score: it also considers your work history, personal references and life experience.
If you have experienced financial hardship or other difficult circumstances that have negatively impacted your studies, you may be eligible for special entry to UQ. Contact UQ Admissions for more information.

UQ’s Bonus Rank Scheme gives current Year 12 high school students bonus points towards their entry score for completing certain approved subjects or courses. Contact UQ Admissions for more information.

English language requirements
If you are from a non-English speaking background, you will need to provide evidence of English proficiency. You can do this by passing Queensland Year 12 English (or interstate/international equivalent), or by other means. Visit bit.ly/UQ-eng-prof for more information.

Programs for high school students
UQ’s Enhanced Studies Program (ESP) lets you complete a university course at either St Lucia or Gatton campus during Semester 1 of Year 12. The program is offered free of charge, boosts your tertiary ranking by one point, and you may even receive credit for the course you completed if you subsequently go on to study at UQ: see uq.edu.au/esp
The Young Scholars Program is another opportunity to discover, learn and engage with UQ’s academic community and like-minded students from across Queensland. See uq.edu.au/youngscholars
Other opportunities include the Institute of Modern Languages (IML) summer intensive sessions: see iml.uq.edu.au/highschool.html and a range of faculty workshops and seminars: see uq.edu.au/schools/activities-for-schools

Alternative entry
If you did not complete Year 12, did not achieve a high enough entry score for your preferred program, or are a mature-aged applicant, there are alternative entry pathways to UQ. Contact UQ Admissions for advice.

Improving an entry score (upgrading)
If you are not offered a place in your preferred program and want to improve your entry score or meet subject prerequisites, you can accept an offer in a less competitive program with fewer prerequisites and try to improve your entry score. This is called upgrading.
We recommend you complete one full year of bachelor degree study to upgrade to higher demand programs because the entry ranks allocated to study totalling less than one full-time year are capped. Depending on your academic performance your new entry rank could be higher than your previous rank.
For more information on how to improve your entry score, contact UQ Admissions.

UQ Admissions
W: uq.edu.au/study/admissions
E: admissions@uq.edu.au
T: +61 7 3365 2203
YOUR FINANCES

Understanding the costs involved will help you be better prepared for university life.

Fees and costs

Course fees and student contributions
When you study at university, at the start of each semester or teaching period you are charged a fee for each course you enrol in. Most undergraduate places at UQ are Commonwealth supported, i.e. funded partly by the Australian Government (Commonwealth support) and partly by you (student contribution).

You qualify for Commonwealth support if you are an Australian or New Zealand citizen, or an Australian permanent resident and have a Commonwealth-supported place (CSP). International students pay full tuition fees.

If you have a CSP, the amount you pay for a course (your student contribution amount) depends on the fee band level of the course (see table below).

It is not possible to publish a fixed fee for a program, because fees are charged according to the courses you choose, not the program you are enrolled in, and most students can choose different electives during their program.

Indicative annual fees (based on average first-year enrolment patterns) are listed on our Future Students website to help you plan your budget.

Future Students

W: future-students.uq.edu.au/study/find-a-program

Student Services and Amenities Fee (SSAF)

In 2011, the Australian Parliament passed legislation allowing universities to charge a fee for non-academic services such as sporting and recreation activities, employment and career advice, child care, financial advice, and food services. UQ levies the SSAF – which is capped at a maximum of $294 for 2017 – according to whether you are an internal or external student, full-time or part-time. The fee is indexed annually.

SSAF


Proposed higher education reforms

The Australian Government intends to finalise revised higher education reforms for 2018 by mid-2017.

Visit the Study Assist website to view 2018 updates as they become available.

StudyAssist

W: studyassist.gov.au

International students: Refer to page 59 for fee information.

INDICATIVE STUDENT CONTRIBUTION BANDS AND AMOUNTS*

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<th>AREA OF STUDY</th>
<th>ANNUAL* STUDENT CONTRIBUTION</th>
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<tr>
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<td>Law, accounting, administration, economics, commerce, dentistry, medicine, veterinary science</td>
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<td>Mathematics, statistics, computing, built environment, health, science, engineering, surveying, agriculture</td>
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<td>1</td>
<td>Humanities, behavioural science, social studies, education, foreign languages, visual and performing arts, nursing</td>
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* 2017 figures only, based on full-time (16-unit) workload: figures indexed annually
Centrelink Student Services
The Australian Government provides three income-support payments for Australian tertiary students: Youth Allowance, Austudy, and ABSTUDY.
You can apply for these payments at any Centrelink Customer Service Centre. Other schemes include:
- Student Start-up Scholarship or Loan
- Relocation Scholarship
- Interest-free advance loan where part of the allowance is paid as a lump-sum advance
- Pensioner Education Supplement (PES)
- Low Income Health Care Card
- Fares Allowance
- Child Care Benefit (CCB) or Rebate, or Job Education and Training (JET) Child Care Fee Assistance.

Other government assistance
HECS-HELP
If you are a domestic student in a Commonwealth-supported place, you may be eligible to receive HECS-HELP.
HECS-HELP is an Australian Government loan scheme. Eligible students may access a HECS-HELP loan to pay their student contribution amounts. You do not have to start repaying your HECS-HELP debt until you earn above a certain income level ($54,869 for the 2016–17 income year). Loan repayments are then taken out of your pay as additional tax. You need to supply your tax file number to apply.

SA-HELP
SA-HELP is a loan scheme that helps you pay for the SSAF. If you use SA-HELP, the amount will be added to your accumulated HELP debt. You can take out a SA-HELP loan even if you do not wish to take out any other HELP loan. You require a tax file number to obtain SA-HELP.

Keeping your costs down
- Investigate the financial support and fee payment options offered by the Australian Government
- Apply now for a tax file number, which you will need to obtain a HELP loan (see ato.gov.au)
- Explore the scholarships on offer (see page 4)
- Enjoy UQ’s low-cost entertainment and activities, and visit their secondhand bookshop
- Ask UQ’s Student Services about finding accommodation

Centrelink
W: humanservices.gov.au

SA-HELP and SA-HELP Information
W: studyassist.gov.au
YOUR FUTURE OPTIONS

When your undergraduate program is complete, you may want to pursue further study, and you will find a range of postgraduate study options to choose from at UQ.

Postgraduate study
UQ offers both coursework programs and research higher degrees (RHD) at postgraduate level.

Both will give you specialised knowledge, provide a significant advantage in the employment market, upgrade your qualifications, enhance your promotion potential, or pave the way for a career in academia.

Research higher degrees (RHDs)
An RHD involves undertaking a significant research project and producing a thesis. You may also have to undertake some coursework. RHDs include the Master of Philosophy (MPhil), which takes one-and-a-half to two years to complete; the Doctor of Philosophy (PhD), which takes three-and-a-half to four years; and the Doctor of Biotechnology (DBiotech), which takes three years to complete. To be awarded these degrees you must produce either a 40,000-, 50,000- or 80,000-word thesis of original research.

MicroMasters
UQ has joined forces with other leading international universities to offer MicroMasters, a series of courses designed to advance your career and offer a path to an accelerated master program.

Recognised by industries for real job relevancy, MicroMasters are delivered via the edX platform, a non-profit online learning destination founded by Harvard and MIT.

UQ’s Leadership in Global Development MicroMasters is the first MicroMasters course to be offered by UQ, with more in the pipeline. The MicroMasters is a prerequisite for UQ’s new Master in Leadership in Global Development, commencing in 2018.

Students can also gain credit towards their UQ Master of Business by completing the MITx MicroMasters Credential in Supply Chain Management.

To find out more, visit the edX website.

STANDARD PATHWAYS TO AND THROUGH UQ

PRE-TERTIARY LEVEL*
QUEENSLAND YEAR 12 (high school equivalent)

TERTIARY PREPARATION PROGRAM
(UQ College) OR BRIDGING PROGRAMS**

UNDERGRADUATE LEVEL
UNDERGRADUATE PROGRAMS
• Associate degree***
• Bachelor degree
• Dual degree

CONCURRENT DIPLOMA

UNDERGRADUATE DIPLOMA

HONOURS

POSTGRADUATE LEVEL
COURSEWORK PROGRAMS ****
• Graduate Certificate
• Graduate Diploma
• Coursework Masters
• Professional Doctorate
• MicroMasters

RESEARCH HIGHER DEGREE PROGRAMS (RHD)
• Master of Philosophy (MPhil)
• Doctor of Philosophy (PhD)
• Doctor of Biotechnology (DBiotech)

* Other entry methods may be possible: contact UQ Admissions or see uq.edu.au/study/docs/domestic/entry-options.pdf
** For more information about approved bridging programs, please access the Bridging Programs Domestic Admissions Information Sheet at uq.edu.au/study/docs/domestic/bridging.pdf
*** The Associate Degree in Business is designed as either a UQ-accredited standalone qualification, or as a pathway to the Bachelor of Business Management.
**** Although postgraduate coursework degrees can lead to an RHD, applicants also require relevant experience or research experience. View the full list of entry requirements here: graduate-school.uq.edu.au/uq-research-degrees

edX MicroMasters W: edx.org/micromasters
MORE STUDY OPTIONS

UQ offers more than 60 exciting undergraduate programs to help build your dream career. For more details, check out our range of publications, or go to future-students.uq.edu.au

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**Arts, Communication, Education and Society**
- Advanced Humanities (Honours)
- Arts
- Communication
- Criminology and Criminal Justice (Honours)
- Education (Primary)
- Education (Secondary)
- International Studies
- Journalism
- Music (Honours)
- Politics, Philosophy and Economics (Honours)
- Social Science

**Business, Economics and Law**
- Advanced Finance and Economics (Honours)
- Business Management
- Commerce
- Economics
- International Hotel and Tourism Management
- Law (Honours)
- Politics, Philosophy and Economics (Honours)

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**Engineering, Architecture and Information Technology**
- Architectural Design
- Engineering
- Information Technology

**Health**
- Biomedical Science
- Clinical Exercise Physiology
- Dental Science
- Exercise and Nutrition Sciences
- Exercise and Sport Sciences
- Health Sciences
- Health, Sport and Physical Education
- Medicine
- Midwifery
- Nursing
- Occupational Therapy
- Pharmacy
- Physiotherapy
- Psychological Science
- Social Work
- Speech Pathology

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**Science**
- Advanced Science
- Agribusiness
- Agricultural Science
- Biomedical Science
- Biotechnology
- Environmental Management
- Environmental Science
- Equine Science
- Food Technology
- Mathematics
- Occupational Health and Safety Science
- Regional and Town Planning
- Science
- Sustainable Agriculture
- Veterinary Science
- Veterinary Technology
- Wildlife Science

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Disclaimer
The inclusion in this publication of details of a program or a course creates no obligation on the part of the University to teach it as or when described. The University may discontinue or vary programs and courses at any time without notice. Information in this guide is accurate as at January 2017.

While care has been taken to provide accurate information in this prospectus, it is the responsibility of students to check and confirm the specific details of programs, courses and enrolment.

In the event of any conflict arising from information contained in this publication, the material approved by The University of Queensland Senate shall prevail.

Visit future-students.uq.edu.au for up-to-date program information.

All costs and fees quoted in this publication are in Australian dollars (AU$).

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Central guides
- Australian Undergraduate (pictured left)
- International Undergraduate and Postgraduate
  (International students can visit future-students.uq.edu.au/publications-and-forms/international to access the latest international student guides)

Copies of these publications are available through UQ Admissions.

T: +61 7 3365 2203
E: admissions@uq.edu.au
W: future-students.uq.edu.au
KEY DATES

Tertiary Studies Expo (TSXPO)
RNA Showgrounds
Saturday and Sunday, 15-16 July 2017

UQ Open Day 2017
St Lucia campus Sunday, 6 August 2017
Gatton campus Sunday, 20 August 2017

QTAC closing date
For on-time applications
Thursday, 28 September 2017
(tentative date only, check qtac.edu.au for details)

Semester 1, 2018
Classes commence
Monday, 19 February 2018

HAVE A QUESTION ABOUT SCIENCE PROGRAMS IN THIS GUIDE?

Faculty of Science – St Lucia campus
T +61 7 3365 1888
E enquire@science.uq.edu.au
W science.uq.edu.au

Faculty of Science – Gatton campus
T +61 7 5460 1276
E enquire@science.uq.edu.au
W science.uq.edu.au

HAVE A QUESTION ABOUT LIVING AND STUDYING AT UQ?

Contact the Future Students Contact Centre
T +61 7 3346 9872
E ask@uq.edu.au
W future-students.uq.edu.au

HAVE A QUESTION ABOUT ENTRY REQUIREMENTS AND ADMISSION TO UQ?

Contact UQ Admissions
T +61 7 3365 2203
E admissions@uq.edu.au
W asd.uq.edu.au/admissions

KEY SCIENCE EVENTS

(check science.uq.edu.au/curious for details)

Junior Physics Olympiad
Monday 26 June – Friday 30 June 2017
Applications close Wednesday 26 April 2017

FEAST (Future Experiences in Agriculture, Science and Technology)
Sunday 25 June – Thursday 29 June 2017
Applications close Friday 31 March 2017

Experience Science
Friday 7 July 2017, Thursday 13 July 2017,
Friday 14 July 2017, Monday 17 July 2017

Earth and Environment Day
Friday 21 July 2017

CRICOS Provider Number 00025B