SCIENCE AND ENGINEERING

UNDERGRADUATE COURSES 2019

ENGINEERING
Chemical process
Civil
Computer and software systems
Electrical
Electrical and aerospace
Mechanical
Mechatronics
Medical

INFORMATION TECHNOLOGY
Computer science
Information systems
Games and interactive environments

MATHEMATICS
Applied and computational mathematics
Decision science
Statistical science

SCIENCE
Biological
Chemistry
Earth
Environmental
Physics

URBAN DEVELOPMENT
Construction management
Property economics
Quantity surveying and cost engineering
Urban and regional planning
EVERY YEAR MANY PEOPLE MAKE QUT THEIR FIRST CHOICE FOR STUDY.

Here’s why you might like to make it yours.

BE IN DEMAND
QUT graduates are in demand. During your time at QUT you’ll gain the knowledge, skills and connections to thrive in your chosen field.

GLOBAL OUTLOOK
With QUT’s world-class courses and learning facilities, and programs for overseas experience, you will be prepared to work in Australia and internationally.

REAL-WORLD COURSES
Prepare for employment in a changing world with up-to-date courses and flexible options to tailor your degree to your interests.

RESEARCH WITH IMPACT
QUT researchers are working on some of the biggest challenges and opportunities facing Australia and the global community.

CONVENIENT CAMPUSES
QUT has campuses at Gardens Point and Kelvin Grove in central Brisbane. With high-quality academic, recreational and support facilities, you will find QUT the perfect place to study.

LEARN FROM THE BEST
You’ll be taught by award-winning teaching staff and have access to industry-standard facilities and opportunities for practical, real-world learning.

THE TIME OF YOUR LIFE
You will study in a culturally diverse and inclusive environment, with opportunities to help you discover your place in the world and make the most of your time at QUT.

The difference is real. Find out more at www.qut.edu.au/graduate-success
CONTENTS

2 Why choose STEM at QUT?
4 Science and engineering on campus
6 Scholarships and leadership development
8 International experience
9 Real-world research

DEGREES
10 Bachelor of Engineering (Honours)
12 Civil
12 Chemical process
14 Computer and software systems
15 Electrical
15 Electrical and aerospace
16 Mechanical
16 Mechatronics
17 Medical
18 Bachelor of Information Technology
20 Computer science
20 Information systems
21 Bachelor of Games and Interactive Environments
22 Bachelor of Mathematics
24 Applied and computational mathematics
24 Decision science
25 Statistical science
26 Bachelor of Science
28 Biological sciences
28 Environmental science
29 Earth science
30 Chemistry
30 Physics
32 Bachelor of Urban Development (Honours)
33 Construction management
34 Quantity surveying and cost engineering
35 Urban and regional planning
36 Bachelor of Property Economics

37 DOUBLE DEGREES
40 Honours programs
42 How do I apply?
43 Science and engineering at a glance
We want to change the world to make it a better place. And we know you do, too. Study in the areas of science, technology, engineering, mathematics (STEM) and urban development will give you the tools you need.

OUR FUTURE DEMANDS STEM
Science, technology, engineering, mathematics and urban development underpin modern society and have wide-reaching impact on our everyday lives.

We design our courses to ensure you graduate future-focused. We teach you the latest scientific advances and technologies, and how to apply these to some of the biggest challenges we are facing in society—challenges in agriculture and the environment, health and medical advances, technology and infrastructure, and energy and resources.

The job market is constantly changing. Some of the strongest employment rates and salaries come from STEM disciplines, due to the specialist knowledge and the transferable skills STEM graduates bring with them into the workplace.

LEARN FROM THE EXPERTS
World-class teaching and strong industry connections ensure our degrees are relevant and applicable. You will learn from experienced and passionate lecturers who are keen to share their knowledge with you.

You’ll have access to technology and facilities that support your studies, including high-tech teaching spaces, high-performance computing and visualisation facilities, and advanced scientific instruments.

RELEVANT CONNECTIONS
QUT has longstanding relationships with leading industry partners such as BMW Group, Boeing, CSIRO, Google, Microsoft and Shell.

These connections offer you outstanding mentoring opportunities and real-world experiences including overseas internships, work experience placements and site visits. You can also study at more than 100 international partner institutions.

IN THE WORKPLACE
Work integrated learning (WIL) at QUT gives you the opportunity to combine workplace activities with study, assessment and support.

Through WIL you can network with industry professionals, experience day-to-day life in your chosen career, work on real projects, and develop your business and personal skills. With workplace experience and connections, you’ll be more competitive when you graduate.

STUDENT CLUBS AND PROJECTS
University isn’t just about study, it’s also about getting involved and experiencing new things. You can join a range of student-led projects and clubs. QUT Motorsport, Robotics Club, Engineers Without Borders, Women in Technology, LabRats, Natural Resource Society and Next Generation Property are just some of the groups where you can make leadership and team member contributions, and work with your peers to make a difference. For more information visit www.qut.edu.au/science-engineering/student-experience

75% OF THE FASTEST GROWING OCCUPATIONS REQUIRE STEM SKILLS AND KNOWLEDGE

FLEXIBILITY
A key feature of all our courses is the flexibility to tailor your degree to your interests and career aspirations. We encourage you to shape your degree through complementary study areas. These options are explored further in the subsequent course pages.

Want to combine engineering and business? Sure, we have a double degree for that. What about science and law? No problem. With a double degree, you can combine relevant and interesting combinations of study to make yourself very employable.

INDUSTRY PARTNERS

Schlumberger  Shell  Boeing  Stryker  SAP  Microsoft  Alstom  Google  Thales  Air France  NeoSoft  Bruel & Kjaer  Neusoft  CEED  QMO  Woolworths  IBM  CEEX  Alstom  GHD  DePuy Synthes  Energex  Neusoft  Accenture  NuVasive
STUDY SUPPORT
We know the leap from high school to university can be a challenge, and so can returning to university study after a break. That’s why we offer study assistance programs such as STIMulate. STIMulate helps students in all courses build skills in maths, science and IT. The peer support program won the Australian Outstanding Peer Educator category of the Australasian Peer Leader Awards in 2015.

We also offer bridging programs in Chemistry, Mathematics B and Physics to prepare you for university studies. Bridging programs are recommended if you didn’t complete the subject at school and may be useful if it’s been a while since you’ve studied. See the course information for assumed knowledge subjects. For advice about bridging courses or interstate equivalent subjects visit www.qut.edu.au/assumed-knowledge

QUT’S SCIENCE AND ENGINEERING FACULTY: QUICK FACTS

More than 8000 international students

More than 100 countries

More than 600 researchers working towards new discoveries

Students from more than 100 countries

Close to 100 professors and 50 associate professors

More than 100 partner institutions in more than 30 countries

6 schools and 21 discipline areas

Around 10000 students

One of the Top 10 universities in Australia for PhD completion

More than 80 industry partners worldwide

Around 10,000 students

One of the Top 10 universities in Australia for PhD completion

More than 80 industry partners worldwide

More than 100 partner institutions in more than 30 countries

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GARDENS POINT CAMPUS

If you study within the Science and Engineering Faculty, you will be based at Gardens Point campus, where you will experience state-of-the-art laboratories, workshops and research facilities that mirror real-world environments.

With more than 30,000 students, Gardens Point is a prime location in Brisbane’s city centre beside the Brisbane River and City Botanic Gardens.

Facilities at Gardens Point include:
- computing and science laboratories
- cafés and food court
- indoor FINA-standard, 50-metre swimming pool and a gym
- bookshop and retail outlets
- Oodgeroo Unit
- licensed bar
- Gardens Theatre
- QUT Art Museum
- Old Government House including William Robinson Gallery
- automatic teller machines (ATMs)
- travel agency
- QUT medical centre and counselling
- childcare centre.

Our campuses are well serviced by public transport including a free shuttle bus between Gardens Point and Kelvin Grove campuses. Visit www.qut.edu.au/campuses-and-facilities

SCIENCE AND ENGINEERING CENTRE

Our Gardens Point campus features a $230 million Science and Engineering Centre, with one of the world’s largest digital interactive learning and display spaces, The Cube.

The centre is also a home for collaborative and interdisciplinary discovery with researchers in the QUT Institute for Future Environments developing ways to make our natural, built and virtual environments more sustainable, secure and resilient.

This state-of-the-art teaching and learning environment, unmatched anywhere in Australia, will inspire you to reach your potential and exceed your goals.

The centre is open to students, the community, schools and teachers. For details of events and engagement opportunities visit www.thecube.qut.edu.au

GREAT FACILITIES

The science and engineering labs and workshops house the latest high-tech equipment and computer software to provide students with the ultimate hands-on learning experience.

As part of the support for student projects and research, there is an extensive range of electronics parts, kits and equipment available free or for loan. QUT’s undergraduate students have a 24/7 electrical lab available, a workshop, and access to training in PCB design, soldering, 3D printing, laser cutting and more.
QUT offers a range of scholarships, bursaries and development programs to support you throughout your studies.

**VICE-CHANCELLOR’S SCHOLARSHIPS**

QUT's Vice-Chancellor’s Scholarships are awarded to domestic and international students with outstanding achievement. Scholarships range in value from $10,000 to $30,000 and are available for academic, sporting or creative excellence. Scholarship applications close on 16 November 2018.

**DEAN’S SCHOLARS PROGRAM**

Our Dean’s Scholars Program is a focused leadership program for outstanding students undertaking any single or double degree in the Science and Engineering Faculty. Dean’s Scholars are an elite group of students who have demonstrated high academic achievement and aspire to be future leaders.

As a Dean’s Scholar, you can expect to more fully develop and utilise your leadership skills in STEM-linked careers through industry experience, international exchange programs, professional development and mentoring. Industry sponsors of the program include Boeing, Energex and Lend Lease.

Students who are awarded a Vice-Chancellor’s Scholarship (Academic) and achieve a grade point average (GPA) of 6.0 or above in their first semester will be invited to apply for a place in the Dean’s Scholars Program from Semester 2.

To find out more visit [www.qut.edu.au/science-engineering/deans-scholars-program](http://www.qut.edu.au/science-engineering/deans-scholars-program)

**WESTPAC BICENTENNIAL FOUNDATION YOUNG TECHNOLOGISTS SCHOLARSHIP**

The Westpac Bicentennial Foundation Young Technologists Scholarship is for students with a passion to bring about change through cutting-edge technology. Awarded on merit, applications close in November each year.

**INDIGENOUS SCHOLARSHIPS AND SUPPORT**

Aboriginal or Torres Strait Islander students commencing an eligible undergraduate degree in the Science and Engineering Faculty can apply for a range of scholarships and loan schemes to assist them throughout their studies.

**WOMEN IN ENGINEERING SCHOLARSHIP**

The Women in Engineering Scholarship encourages and supports female students entering their first year of full-time engineering study. Recipients are also eligible for the Monique Cramer Award. Applications close on 16 November 2018.

**WOMEN IN INFORMATION TECHNOLOGY MERIT SCHOLARSHIP**

Up to six scholarships are available to Queensland Year 12 female domestic students with an OP 1-5 who want to enrol full time in an undergraduate information technology degree. Applications close on 16 November 2018.

**SCHOLARSHIPS FOR STUDENTS EXPERIENCING FINANCIAL HARDSHIP**

In conjunction with the Equity Scholarships Scheme, we offer several scholarships and bursaries to support students from low-income backgrounds. Students are assessed on financial need, not academic results. All low-income students are encouraged to apply through the Equity Scholarships Scheme. Visit [www.qut.edu.au/scholarships](http://www.qut.edu.au/scholarships) for full details.

**NIAMH CONWAY**

Being part of the Westpac 100 Scholars Network has been the most incredible experience. I thought that this scholarship would just assist with the funding of my degree but it has been so much more. It is a community and a support network. I never thought that at such an early stage in my career I would have the opportunities and support that this scholarship has provided.

**SPONSORS OF THE DEAN’S SCHOLARS PROGRAM**

- AMPC
- TechnologyOne
- Energex
- Indiact
- Boeing
EZEKIEL NIMPAYE

Growing up, Ezekiel Nimpaye was a refugee of the civil war in Burundi, Africa. After he relocated to Australia, he commenced his Year 10 studies and dreamed of studying engineering.

The scholarship he received from QUT’s Learning Potential Fund helped him focus on his studies.

After Ezekiel graduated in 2016, he travelled to his home village to visit his family, before starting his career with a graduate engineering role.
Our international study and internship opportunities are valuable experiences that prepare you to work globally. We actively encourage and support you to undertake an international study experience. It’s an ideal opportunity to complement your QUT degree with a new study area, or boost your international and industry skills through an internship. You will also explore a new country, experience a new culture and make new friends.

Participating in an exchange program requires initiative, commitment and flexibility. These are qualities employers value highly, so the professional and personal skills you develop while overseas can give you an edge in the job market.

Potential exchange, study tour and internship destinations include:
- Austria
- Canada
- Czech Republic
- Denmark
- Finland
- France
- Hong Kong
- Ireland
- Italy
- Netherlands
- Norway
- Singapore
- South Africa
- Spain
- Sweden
- Taiwan
- United Kingdom
- United States of America.

EXCHANGE
We have links with international institutions in 32 countries around the world. Many of these institutions are renowned for their excellence in STEM, and offer a great opportunity to expand your horizons both personally and academically.

You can complete one or two semesters at a partner university and enjoy life overseas while building invaluable international connections at universities such as:
- Korea Advanced Institute of Science and Technology (Korea)
- University of Stuttgart (Germany)
- Politecnico di Milano (Italy)
- University of Copenhagen (Denmark)
- École Polytechnique de Montréal (Canada)
- Rensselaer Polytechnic Institute (USA)
- Purdue University (USA).

INTERNATIONAL EXPERIENCE

ERIN SMITH
I've experienced several overseas placements that supplement my studies in law and science at QUT. Participating in the University Scholars Leadership Symposium at the United Nations in Bangkok, I learnt how sustainable development goals could benefit from scientific professionals. My double degree combination provides me with a unique opportunity and I was excited by how instrumental my science degree could be on the international stage.

INTERNSHIPS
Internships offer the best of both worlds. Gaining international experience while developing your practical skills through an industry- or lab-based internship will strengthen your qualifications. It’s another avenue for QUT students to gain highly valuable experience.

Our students have undertaken internships with BMW, Fraunhofer, Hochtief and other industry leaders in locations around the world such as Canada, France, Germany, Hong Kong, Iceland, Japan, Norway, Turkey and the United Kingdom.

SHORT-TERM OPPORTUNITIES
Not enough time for a full semester of exchange? A short-term program, typically from one to six weeks in duration, can offer a great alternative.

These options, including study tours and language programs, are available at selected partner institutions with demonstrated strengths across the Science and Engineering Faculty disciplines.

To learn more about exchange and internship opportunities visit www.qut.edu.au/study/overseas-study-and-exchange
If you want to make a difference in the world, consider extending your studies into research. Our researchers work in key STEM areas, aiming to solve some of the major challenges facing society and the planet such as sustainable development and climate change, energy and food security, an ageing population and chronic disease, and information dissemination and security.

**RESEARCH-BASED LEARNING**
Our research informs and enhances all aspects of teaching. Through our research-based learning approach you will develop the critical thinking and entrepreneurial skills that are essential in graduate-level positions. Throughout your studies you will have the opportunity to explore research themes and projects. You can take your passion further and extend your undergraduate degree with an honours program. For more information about honours, please refer to page 40.

**REAL RESEARCH EXPERIENCE**
QUT gives you the opportunity to connect with leading researchers at hospital-based facilities, environmental living laboratories, aerospace centres and QUT-based institutes. Our Vacation Research Experience Scheme is an opportunity to delve into the world of research by working with active researchers on a real project for a period of six to 10 weeks. It offers a challenging environment and is ideal if you’re keen to investigate your potential for a career in research. Visit www.qut.edu.au/undergraduate-research-experience

**BRENDAN LANGFIELD**
Through QUT’s Vacation Research Experience Scheme, Brendan worked on a project investigating 3D printing of human tissue and has continued to work with the project team as a research assistant.

There are a lot of different ways to solve a problem. Physics involves and invokes an awful lot of creativity in how you get to a solution. I find that to be really exciting and rewarding.
BACHELOR OF ENGINEERING (HONOURS)

2018 OP (including adjustments) 10
2018 selection rank (including adjustments) 78
QTAC code 412502
Campus Gardens Point
Duration 4 years full time
Assumed knowledge English (4 SA) and Maths B (4 SA)
OP Guarantee Yes
Entry February and July

As an engineer, anything is possible. Engineers make things happen by developing practical solutions for real-world challenges across all industries.

WHY CHOOSE ENGINEERING AT QUT?
Your QUT degree is all about real-world application. Industry connections, student-led projects, international study tours and access to multimillion-dollar research facilities add up to a rich and challenging learning experience.

TEACHING EXCELLENCE
Our teachers are leaders in their field, respected by and connected to industry. This ensures your learning is relevant and up-to-date.

STUDENT GROUP PROJECTS
You will have the chance to join a range of student-led projects and clubs in areas such as formula racing, aerospace, international aid and women in engineering.

THE HONOURS EDGE
QUT’s engineering degree includes honours-level content integrated throughout the course. The advanced knowledge and skills will benefit you in your professional career, future research and study.

CREATE YOUR FUTURE
Your course content is focused on real-world engineering. Through the selection of your major, second major or minor options, you can tailor your course to suit your career aspirations, and develop skills that distinguish you from other graduates.

YOUR ENGINEERING DEGREE

ENGINEERING core units
8 units

Primary major
16 units
Choose one of eight majors from chemical process, civil, computer and software systems, electrical, electrical and aerospace, mechanical, mechatronics or medical engineering.

Complementary study
8 units
Second major or two minors

Second majors
Choose a second engineering discipline or explore different perspectives from another study area, which may include aerospace, computer and software systems, construction, electrical, environmental, mechanical, medical, structural, or transport engineering; applied economics and finance; computational and simulation science; or logistics management.

Minors
- computational and simulation science
- engineering construction
- engineering structures
- environmental management
- science and mathematics education
- materials
- physics for engineers
- robotics
- thermofluids
- motor racing vehicle design

You can also choose minors from across the university to provide insights into specific areas. This might also include language studies or an international exchange.

LEARN IN THE WORKPLACE
Our work integrated learning program provides you with quality experience under the supervision of a certified engineer, ensuring you’ll be work ready.

MID-YEAR ENTRY
You can commence this course in February or July, giving you the flexibility to start studying as soon as possible.

DOUBLE DEGREES
- architecture
- business
- industrial design
- information technology
- interaction design
- landscape architecture
- mathematics
- science

For more information see pages 37–39.

YEAR 12 SUBJECT SCHEME
QUT’s Year 12 subject scheme offers an adjustment of two selection ranks for students who complete and pass Engineering Technology, Aerospace Studies, Maths C, Physics, a language other than English, or university subjects in secondary school. For more information visit www.qut.edu.au/entry-bonus

PROFESSIONAL RECOGNITION
QUT engineering degrees have professional accreditation from Engineers Australia (EA). EA is a signatory to the Washington Accord, which permits graduates to work in various countries across the world.

For more detail about this course and OP/selection rank, see the online course information at www.qut.edu.au/study
JADEN PARTRIDGE

My choice to study at QUT came down to the range of elective units I could do, the Formula SAE team and the international opportunities offered with industry connections. Throughout my degree, design units always involved the opportunity to build and test my own creations, benchmarked against the rules and my peers. My involvement in QUT Motorsport led me to win a global competition to work in Formula One.
CIVIL

Civil engineers plan, design, construct, operate and maintain a variety of structures and facilities—from roads and factories to railways and harbours. They are also involved with the assessment of the impact of projects on the natural and social environment. Civil engineers are responsible for producing safe, economical and environmentally sound infrastructure for the wider community.

WHY CHOOSE THIS MAJOR?

Civil engineers are in demand and they are well paid. As a civil engineer, you could be involved in seeing through a project from design stage to construction and completion. You will be eligible for professional membership in Australia and overseas, giving you more employment opportunities. Throughout your studies you will gain both broad knowledge and specialisations so you will be better equipped to start work in professional practice.

CAREER OUTCOMES

Civil engineers can work as a consultant or project manager, or as a municipal, structural, transport, geotechnical or water engineer. You may gain employment in government or semi-government agencies, construction firms, power generating authorities, mining firms, property development or consulting engineering firms.

CHEMICAL PROCESS

Chemical process engineering develops and optimises industrial processes to refine, renew or modify raw materials (for example, sugar cane, ore-bearing rocks, waste, commodity chemicals or animals) to produce useful products and by-products for our society. Chemical process engineers may design equipment, control chemical reactions, develop process control strategies and operate industrial processes.

WHY CHOOSE THIS MAJOR?

You will have opportunities for hands-on learning through site visits, work integrated learning and research projects. During your course you will study mathematics, chemistry, energy systems, fluid mechanics, engineering materials, energy management and process management. You will also develop project management and leadership skills to approach complex and multidisciplinary problems.

CAREER OUTCOMES

Chemical process engineers may work in consulting, contracting, general management, investment analysis and advice, process planning and design, operations management, research or as a technical specialist. Industries that employ chemical process engineers include professional, scientific, technical and environmental services, manufacturing, mining, and electricity, gas, water and waste services.
SARAH SKEA
In my second year of study I received a scholarship through QUT with the company BMD Constructions. This included part-time employment for the duration of my degree. While working at BMD I took part in a project called Constructionarium, which was an incredible opportunity to plan, manage and build a six-metre structure all within a week. This was a brilliant experience that taught me a lot about real-life engineering.

MIKE FIDELI
As an energy consultant I help deliver renewable energy solutions that save councils money and bring Australia closer to the 2030 emission reduction target. I’ve worked on the installation of a geothermal power plant in Winton—Australia’s first grid-connected geothermal plant to generate electricity using low temperatures. QUT prepared me with assessments that challenged my thinking and an emphasis on real-world applications.

RHIANNA FERGUSON
While at QUT, I worked as a student engineer at Boeing Defence Australia as part of the Super Hornet avionics team. With a Boeing travel bursary I toured the United States and witnessed a NASA space launch at Cape Canaveral. I now work with Boeing on Wedgetail in Brisbane, having been with the company in Seattle previously. Seeing the jets take off and knowing that I have contributed in some small way is an incredibly satisfying feeling.
Computer and software engineers create and modify software programs such as operating systems, applications software and communications software, as well as software embedded in devices ranging from mobile phones to GPS, satellites and aircraft flight systems.

WHY CHOOSE THIS MAJOR?
You will graduate with a background in electrical engineering with an embedded systems specialisation, along with software design and implementation skills. This will provide opportunities to work across industries including banking and finance, government, education, transportation, entertainment, science, medicine and law.

CAREER OUTCOMES
Software engineers are employed in a wide variety of industries. They may work in engineering firms, for example specialising in rail or vehicle transport, traffic management or construction. They may also work in information technology-specific industries in software architecture, cyber-security or as an embedded software engineer, and in organisations such as Microsoft, Google and Amazon.

TIM PEUT
QUT encourages you to think big—not just solve problems, but to go above and beyond.

During my internship at Google headquarters in California, I designed and developed test infrastructure for a large software system. I now work there full time and it’s amazing. Knowing that your work can impact Google users around the globe leaves you with a great sense of accomplishment.

For more detail about these courses including units, visit www.qut.edu.au/study
ELECTRICAL

Electrical engineers design, research, develop, plan, manufacture and manage electrical systems and devices which underpin modern economies and contribute to quality of life. They work with a range of products, ranging from heavy power generators to tiny computer chips, across many industries.

WHY CHOOSE THIS MAJOR?
QUT’s strong industry links, real-world lecturers and practical focus ensure you will be work ready, with the ability to design and maintain cutting-edge products for the information and communication industries. You will develop practical skills through laboratories and design projects.

CAREER OUTCOMES
Electrical engineers are employed in the power industry, robotics, manufacturing, mining and bio-engineering. Opportunities are also found in the telecommunications industry, mining and transport sectors, as well as computer and transmission industries, and in service industries, large industrial groups and small innovative private firms.

Year 1
• common units and overview of engineering majors
• foundation principles in engineering, engineering mathematics and sustainability
• hands-on activities/projects

Year 2
• electrical engineering knowledge and writing software to solve engineering problems
• fundamentals of electronics and electrical engineering design
• concepts in electronics, telecommunications and software design

Year 3
• advanced units in control, power systems, electronics, signal processing and telecommunications
• skills in report writing and seminar presentation

Year 4
• a major project showcasing your acquired skills
• advanced communication skills in report writing and seminar presentation
• work integrated learning experience

ELECTRICAL AND AEROSPACE

Aerospace avionics engineering involves design, development, manufacture and maintenance work on the electronic systems of military and civilian aviation, defence systems, spacecraft, satellites and uninhabited aerial vehicles (UAVs). An electrical and aerospace engineer often specialises in areas such as aircraft control systems, navigation and communications, robotics or electronic systems.

WHY CHOOSE THIS MAJOR?
QUT is a major player in national avionics research and has strong partnerships with government and industry. You will be involved in research projects such as fixed-wing UAV and rotorcraft, aerospace vision systems, aircraft control systems and autopilot design. Through field trips you will gain a first-hand view of aerospace avionics, and engage with QUT engineers and researchers in the field.

CAREER OUTCOMES
You may work with the Royal Australian Air Force, Royal Australian Navy, the Defence Research Centre, or the Civil Aviation Authority. There are also career options with aerospace companies such as Boeing, Australian Aerospace, Raytheon and aircraft maintenance and aeronautical consulting services, as well as in electronics, communications, process control, instrument manufacture and automotive equipment.

Year 1
• common units and overview of engineering majors
• foundation principles in engineering, engineering mathematics and sustainability
• hands-on activities/projects

Year 2
• aerospace industry terminology and work practices
• fundamentals of aircraft performance
• flight control principles, aviation safety, wind tunnel tests and mach number effects

Year 3
• flight control systems of modern aircraft
• methods for modelling the dynamic behaviour of aircraft, missiles and spacecraft, and criteria for stability
• application of systems engineering methodologies and techniques to projects

Year 4
• spacecraft guidance and navigation, orbit and altitude determination, the dynamics of rocket ascent trajectories and applied electromagnetic aerospace radio radar systems
• a one-year project and work integrated learning experience
MECHANICAL

Focusing on the principles of force, energy and motion, mechanical engineers use their understanding of design, manufacture and operational processes to create, improve and maintain systems and machinery spanning multiple industries. Mechanical engineers keep pace with technology to enhance safety, economic vitality and sustainability. Virtually every aspect of life is touched by mechanical engineering.

WHY CHOOSE THIS MAJOR?
You receive a thorough grounding in the engineering sciences and hands-on, practical experience in real-world problem solving and application of theory in a program that is strongly oriented towards industry needs. This will ensure you are fully prepared to work in every aspect of mechanical engineering.

CAREER OUTCOMES
You may work in Australia and overseas in roles such as a consultant, project manager or technical adviser in industries including manufacturing, mining, refrigeration and air conditioning, transportation and mechanical handling.

MECHATRONICS

Mechatronics engineering is the design and maintenance of machinery with electronic and computer control systems, such as aircraft and power generators, to work in the high-tech fields of automated systems and robotics. Typically, a mechatronic system picks up signals from the environment, processes them to generate output signals, transforming them, for example, into forces, motions and actions.

WHY CHOOSE THIS MAJOR?
Mechatronics engineering is a growth industry, combining the disciplines of mechanical, electrical and electronic engineering, and computing. You will benefit from QUT’s close links with industry and may be involved in projects such as QUT Motorsport and the aerospace avionics Uninhabited Aerial Vehicle Outback Challenge.

CAREER OUTCOMES
You may work as a consultant, project manager, designer or maintenance and instrumentation engineer in a wide variety of industries. These include manufacturing plants of consumer products, computer peripherals manufacturers or maintenance companies, automobile and aerospace manufacturing industries, primary production and mining, communication companies, research organisations, food and food processing industries, and software development companies.
MEDICAL

Medical engineering integrates engineering principles with human physiology to design systems and products with the goal of improving the quality and effectiveness of patient care. Medical engineers design, manufacture and service medical and surgical equipment, ranging from CT scanners to kidney dialysis machines and implants.

WHY CHOOSE THIS MAJOR?
Throughout this course, you will undertake professional experience and other hands-on activities such as hospital and industry site visits. You may also be involved in industry-based projects, overseas study, work opportunities and groundbreaking research through the QUT Institute of Health and Biomedical Innovation and the QUT Medical Engineering Research Facility.

CAREER OUTCOMES
Graduates may find employment in hospitals as advisers to health and medical professionals, in firms concerned with design, manufacture, supply and maintenance of medical, health and sporting equipment, in occupational health agencies, and in research institutions. Biomedical engineers may be involved in the design of new devices and the assessment of engineering solutions to medical problems.

Year 1
- common units and overview of engineering majors
- foundation principles in engineering, engineering mathematics and sustainability
- hands-on activities/projects

Year 2
- engineering science knowledge in materials, dynamics and fluid mechanics
- engineering design, drawing and solid modelling
- human anatomy and physiology
- practical experience in our laboratories

Year 3
- knowledge and skills in areas including biomechanics, biofluids and stress analysis
- biomedical engineering design, ethics, sustainability and regulation

Year 4
- biomaterials and modelling and simulation techniques
- a major project that showcases your acquired skills
- advanced communication skills
- work integrated learning experience

RENEE NIGHTINGALE
I was studying mechanical engineering when a family member received cochlear implants. I saw that engineering could provide a long-term solution for his hearing loss and it inspired me to change to medical engineering.

I would love a career working to improve the health of individuals through the development and implementation of viable healthcare technology. Knowing that I had a hand in improving someone’s life would be so rewarding.

AMY GUNNELL
I chose to study mechatronics as it focused on the design, control and interactions of both mechanical and electrical systems. By adding robotics as a second study area, I gained further insight and depth.

I now work as an automation engineer at a food manufacturing company in Australia on a variety of control systems, from individual robot control to whole manufacturing lines.
### BACHELOR OF INFORMATION TECHNOLOGY

**2018 OP** (including adjustments) 11
**2018 selection rank** (including adjustments) 76
**QTAC code** 418801
**Campus** Gardens Point
**Duration** 3 years full time, 6 years part time
**Assumed knowledge** English (4 SA) and Maths A, B or C (4 SA)
**OP Guarantee** Yes
**Entry** February and July

**WHY CHOOSE INFORMATION TECHNOLOGY AT QUT?**
At QUT, you can build an IT qualification that supports your interests and career aspirations. You’ll learn from the experts, get hands-on experience and have opportunities for internships in Australia and overseas.

**EMPLOYABILITY**
With a QUT degree you can pursue your IT career across a diverse range of industries including aviation, mining, engineering, finance, creative industries, networking and communications. Our interactive learning spaces and real-world approach will ensure you are in demand as a problem solver and innovator.

**LEARN FROM THE EXPERTS**
Our lecturers are experts in their field and include award-winning teachers and world-renowned researchers. All have strong connections with industry, ensuring you’ll graduate with the capabilities a career in IT demands—both now and into the future.

**GLOBAL WORKPLACE LINKS**
We maintain strong links with international vendors such as Microsoft, SAP, Fujitsu and PricewaterhouseCoopers, and IT users such as Suncorp and Bank of Queensland. Our partners provide valuable insight into the world of IT and opportunities for local and international internships.

**INTERNATIONAL STUDY**
We have links with key universities throughout Europe, Asia and the Americas giving you options for overseas study through our exchange program.

**CREATE YOUR FUTURE**
Our IT degree gives you the opportunity to foster your passion and shape your career through the selection of your major, second major and minor options. You can pursue another IT discipline, or explore different perspectives such as computational and simulation science.

**YOUR INFORMATION TECHNOLOGY DEGREE**

- **IT core units** 6 units
- **Primary major** 10 units
  - Choose from computer science or information systems
- **Complementary study** 8 units
  - Second major or two minors

**Minors**
- data-centric computing
- business process management (BPM)
- computational and simulation science
- computer science
- enterprise systems
- user experience
- information systems
- intelligent systems
- mobile applications
- software development

You can also choose minors from across the university to provide insights into specific areas. This might also include language studies or an international exchange.

**MID-YEAR ENTRY**
You can commence this course in February or July, giving you the flexibility to start studying as soon as possible.

**DOUBLE DEGREES**
- business
- creative industries
- digital media
- engineering
- interaction design
- law
- mathematics
- science
- secondary education*

For more information see pages 37–39.

**PROFESSIONAL RECOGNITION**
Graduates are eligible for membership of the Australian Computer Society (ACS). ACS accreditation is internationally recognised by the Seoul Accord.

**PATHWAY**
If you are concerned you won’t meet the OP/selection rank, consider the TAFE QUT dual awards—Diploma of Information Technology Networking or Diploma of Website Development, with Bachelor of Information Technology. Visit www.qut.edu.au/upgrading

**GAMES AND INTERACTIVE ENVIRONMENTS**
Our suite of IT programs also includes the Bachelor of Games and Interactive Environments. It is the most successful degree of its kind in Queensland, with strong connections to local games industries, as well as other industry partners in game-based technology. For more information see page 21.

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*The availability of evening classes is not guaranteed.

* From 2019, we plan to offer a double degree in information technology with secondary education, subject to final approval.

For more detail about this course and OP/selection rank, see the online course information at www.qut.edu.au/study
DANIELLE VAZ
While at QUT, I worked as a Google student ambassador, representing Google on campus and sharing opportunities with QUT students. I also participated in a variety of internships that were tremendously valuable. I worked with really experienced, accomplished professionals, some of whom have become my mentors. On the last day of my internship with Deloitte I was offered a full-time role in their digital team.

I currently work as a technical business analyst with Deloitte Digital. In 2017 I was a finalist for the Queensland Women in Technology ICT Young Achiever Award.

KELVIN O’SHEA
While studying Kelvin O’Shea undertook a four-week internship with Tanda, a software company founded by QUT alumni. Kelvin has now accepted a graduate position with the company.

The internship gave me an opportunity I would not have expected. To be given the responsibility to redesign a product core to the business was challenging, exciting and motivating. It helped me develop my technical skills and understand how knowledge translates from university to the real world.
COMPUTER SCIENCE

Computer science involves using hardware and software to design and build systems to solve complex problems or issues associated with efficiency, usability and security. It can be applied to mobile computing, artificial intelligence, robotics and large-scale information management involving information retrieval and web search engines.

WHY CHOOSE THIS MAJOR?
You can customise your degree to suit your areas of interest. You will learn software development and networked systems, with the opportunity to gain specific expertise in areas such as information security, networks and communications, intelligent systems, data-centric computing or user experience.

CAREER OUTCOMES
Career opportunities are abundant and graduates work in roles such as software developer, systems analyst, programmer, mobile application developer, website developer, user experience designer, network administrator, security analyst, computer scientist, systems programmer or data mining specialist.

INFORMATION SYSTEMS

Information systems focuses on identifying organisational requirements and acquiring effective IT systems solutions. It may involve the design of large database applications for business, the application of new technologies to business opportunities, as well as the identification, purchase and implementation of packaged software.

WHY CHOOSE THIS MAJOR?
Information systems gives you the skills to shape the industries of the future. You will develop expertise in working with people, data, business processes and technology to find innovative solutions.

CAREER OUTCOMES
Graduates may work as business analysts, information systems consultants, domain experts, chief technology officers, chief information officers, managers, executives or entrepreneurs. Opportunities also exist in business process management, social media and mobile application development, or as information technology innovators within enterprises, consulting companies or a new start-up.

For more detail about these courses including units, visit www.qut.edu.au/study
Games development is the fastest growing sector of the worldwide audiovisual market from a consumer perspective. Brisbane is an industrial hub for games and interactive digital experiences, producing games for a worldwide audience and receiving international recognition.

WHY CHOOSE THIS COURSE?
Learn about games and interactive environments from experienced industry educators. This course is a collaboration between QUT’s Science and Engineering and Creative Industries faculties, so you will learn creative, design and technology skills from experts in their respective fields.

You will gain experience in the whole process of game and interactive media development—from identification and evaluation of ideas, creation of design concepts, critiquing products, and analysing cultural impact and industry trends, through to the development and publication of a final product.

CAREER OUTCOMES
You may find employment as a games programmer, games designer, simulation developer or designer, animator, user experience specialist, application developer, quality assurance specialist, sound designer, mobile application developer, or in film and television special effects.

In addition, your strong design and programming skills can open up jobs such as web developer, digital product strategist, multimedia designer, software developer or technical officer.

DOUBLE DEGREES
• business
• mathematics
• science
For more information see pages 37–39.

QUT eSports
Dylan Poulus and Michael Trotter co-founded the first university eSports program in Australia. The program facilitates player development from grassroots to professional participation. eSports is a growing $1.2 billion global industry. QUT eSports has an arena facility at Gardens Point campus and hosts events for a community of students.
The availability of evening classes is not guaranteed.

For more detail about this course and OP/selection rank, see the online course information at www.qut.edu.au/study

2018 OP (including adjustments) 7
2018 selection rank (including adjustments) 86
QTAC code 418701
Campus Gardens Point
Duration 3 years full time, 6 years part time^1
Assumed knowledge English (4 SA) and Maths B (4 SA)
OP Guarantee Yes
Entry February

Mathematics provides powerful tools for analysis of today’s complex world and gives an insight into many significant real-world problems.

WHY CHOOSE MATHEMATICS AT QUT?
As part of a small, high-performing group of students, you will build your skills with the latest specialist equipment, focus on solving real industry problems, and learn from internationally recognised maths academics and researchers.

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SOLVE REAL-WORLD PROBLEMS
You will gain practical skills to enable you to solve real-world problems and prepare you for a career in a range of areas such as finance, investment, information technology, environmental management, health, marketing, logistics, defence, media, education and research.

--------------------------------------
CUTTING-EDGE TECHNOLOGIES
During your studies, you will use sophisticated, workplace-relevant software, giving you a solid grounding for future employment in research and industry where data analysis and modelling tools are becoming more prevalent.

--------------------------------------
LEARN FROM THE EXPERTS
Many of our academics are leaders in research with local and international industry links, ensuring that the teaching material will challenge you and is relevant to industry needs.

Our research focus areas include big data, data science, computational modelling and simulation science, and the simulation and analysis of complex systems ranging from biological structures through to transport networks.

EXPERIENCE RESEARCH
Research experience boosts your learning and future career or research prospects. You will have the opportunity to complete the Vacation Research Experience Scheme, working alongside QUT’s researchers on a real research project.

High-performing students may be invited to work with our internationally recognised research academics and industry professionals on real research projects, giving you academic credit toward your final year of study.

CREATE YOUR FUTURE
Through the selection of your major, second major or minor options, you can prepare for a career in your field of interest, or for further study through our postgraduate research programs.

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YOUR MATHEMATICS DEGREE

Mathematics core units 6 units

Primary major 10 units
Choose from applied and computational mathematics, decision science, or statistical science

Complementary study 8 units
Second major or two minors

--------------------------------------
Second majors
A second major complements your major studies and gives you a significant depth of knowledge and expertise in two areas. Second majors include:

- applied and computational mathematics
- decision science
- statistical science
- computational and simulation science
- accountancy
- applied economics and finance
- logistics management
- physics
- chemistry
- biological sciences
- earth science
- environmental science.

Minors
Minors are available from within the faculty or from other areas of the university, and include experiential minors such as international exchange and the new minor, Science and Mathematics Education.

DOUBBLE DEGREES
- business
- engineering
- games and interactive environments
- information technology
- science

For more information see pages 37–39.

^1 The availability of evening classes is not guaranteed.
SOLENE HEGARTY-CREMER

I love maths—it’s in every industry and people don’t realise how much you can do.

While at QUT, I interned at Boeing working on a mathematical model to describe pilots’ ability to detect collisions. I’ve also travelled to Cambodia with Engineers Without Borders, staying in a rural community and sharing our knowledge about reusing plastic waste. It was great to see how my skills could fit within an engineering team. And I recently returned from a semester exchange to Canada at the University of Waterloo where I experienced a new culture and travelled while still gaining credit towards my degree.
APPLIED AND COMPUTATIONAL MATHEMATICS

Applied mathematicians and computational scientists are at the forefront of scientific and technological advancement. This study area has contributed to new understanding and advancements in areas such as the growth of cancerous tumours, wound healing, cryptography and coal seam gas production.

WHY CHOOSE THIS MAJOR?
This major provides strong links between theory and application. You will investigate mathematical theory to see how it can be applied to real-world scenarios in the physical and chemical sciences, biology, engineering and the social sciences. You will also develop computational solution and simulation methods, coupled with modelling skills in order to investigate large-scale problems.

CAREER OUTCOMES
Your mathematical knowledge as well as your analytical and problem-solving skills will be in demand in areas such as finance, investment, information technology, environmental management, health, marketing, logistics, defence, media, education and research.

PROFESSIONAL RECOGNITION
Graduates may be eligible for membership of the Australian Mathematical Society (AustMS) and ANZIAM (Australia and New Zealand Industrial and Applied Mathematics), a division of AustMS.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
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<tbody>
<tr>
<td>• mathematical reasoning, statistics and modelling, data analysis</td>
<td>• differential equations and computational linear algebra</td>
</tr>
<tr>
<td>• computational mathematics, calculus and algebra</td>
<td>• advanced calculus and algebra</td>
</tr>
<tr>
<td>• choose option study units</td>
<td>• practical experience working on real-world problems</td>
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</tbody>
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<tr>
<th>Year 3</th>
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</thead>
<tbody>
<tr>
<td>• partial differential equations, dynamical systems and computational fluid dynamics</td>
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<tr>
<td>• a major project that showcases your acquired skills</td>
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<tr>
<td>• second major/minor study units</td>
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DECISION SCIENCE

Decision science deals with how best to design, operate and/or predict behaviour of complex systems like people, machinery, materials and money in industry, business, finance, education, government and defence. Decision scientists develop mathematical models and algorithms to answer what-if scenarios, and design experiments to help guide research and improve processes.

WHY CHOOSE THIS MAJOR?
You will develop skills using a variety of software and advanced analytical methods such as operations research, stochastic and mathematical modelling, and mathematical optimisation. The course has a focus on practical applications across industries and processes including manufacturing and production, healthcare, infrastructure, transportation and logistics, mining and defence.

CAREER OUTCOMES
Graduates have a wide range of employment opportunities. You will be prepared for careers or further postgraduate study in technical fields such as operations research, management science, information technology, industrial engineering, strategic planning, systems analysis, financial analysis and actuarial science.

PROFESSIONAL RECOGNITION
Graduates may be eligible for membership of the Australian Society for Operations Research.

<table>
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<tr>
<th>Year 1</th>
<th>Year 2</th>
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<tbody>
<tr>
<td>• mathematical reasoning, statistics and modelling, data analysis</td>
<td>• decision science knowledge in operations research</td>
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<tr>
<td>• computational mathematics, calculus and algebra</td>
<td>• advanced calculus and algebra</td>
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<tr>
<td>• choose option study units</td>
<td>• practical experience working on real-world problems</td>
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<table>
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<tr>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>• operations research, data analysis and forecasting</td>
</tr>
<tr>
<td>• a major project that showcases your acquired skills</td>
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<tr>
<td>• second major/minor study units</td>
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</table>

For more detail about these courses including units, visit www.qut.edu.au/study
Mathematicians and statisticians use their analytical and problem-solving skills in a vast array of roles and settings such as developing new financial products in the banking industry, or optimising transportation. They can also aid scientific research by data mining to discover genetic links and pathways, or help to understand pandemic disease transmission.

WHY CHOOSE THIS MAJOR?
You will develop advanced statistical and analytical skills using applications and datasets from the real world, providing strong links between theory and application, and preparing you for a career in industry, government and/or research.

CAREER OUTCOMES
Career outcomes include data analyst, quantitative analyst, researcher, risk analyst and statistician. Positions of this nature are often found with employers such as the Australian Bureau of Statistics, Queensland Treasury, state and federal governments, financial institutions, CSIRO, insurance companies and medical companies.

PROFESSIONAL RECOGNITION
Graduates may be eligible for membership of the Statistical Society of Australia.

SASHA RICHARDS
There’s a great maths community at QUT. I’ve had lecturers who have worked with NASA and Microsoft, and they are all-round leaders in their fields. They’re always eager to help and approachable, and bring experience and examples to the classroom. All of the class problems and assignments have a real-life context, which helps you to fully understand the capabilities of the maths being done.
BACHELOR OF SCIENCE

2018 OP (including adjustments) 13
2018 selection rank (including adjustments) 71
QTAC code 418011
Campus Gardens Point
Duration 3 years full time, 6 years part time
Assumed knowledge English (4 SA) and Maths B (4 SA)
OP Guarantee Yes
Entry February and July

By studying a science degree, you could help develop solutions for challenges of global importance including climate change, long-term ecological impacts, energy and geosystems, food security and water resource management.

WHY CHOOSE SCIENCE AT QUT?
Be at the cutting edge of science education with access to QUT’s multimillion dollar research and teaching facilities. You’ll have opportunities for student-led projects and international study tours, and access to experienced lecturers and industry representatives.

EMPLOYABILITY
Our courses are designed in consultation with industry, government and the professions. You will not only learn theory, you will apply it to real-world situations, ensuring your skills will be in demand when you graduate.

PRACTICAL TEACHING
From the beginning of your course you will spend quality time in QUT’s state-of-the-art laboratories learning the latest techniques and using equipment found in industry. You’ll learn about recent discoveries and innovative new technologies ensuring you graduate with the most up-to-date knowledge.

REAL-WORLD EXPERIENCE
Work alongside QUT’s researchers through the Vacation Research Experience Scheme, or combine workplace activities with study, assessment and support through our work integrated learning program.

TEACHING EXCELLENCE
Our lecturers are experts in their field and include award-winning teachers and world-renowned researchers. All have strong connections with industry through professional experience, applied research and consultancy projects, giving you access to a network of contacts and the latest industry developments.

CREATE YOUR FUTURE
Our flexible course design means you can shape your future career path and explore your interests and aspirations. You’ll choose a major as well as a second major or minor options.

YOUR SCIENCE DEGREE

<table>
<thead>
<tr>
<th>Science core units</th>
<th>5 units</th>
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<tbody>
<tr>
<td>Primary major</td>
<td>11 units</td>
</tr>
<tr>
<td>Complementary study</td>
<td>8 units</td>
</tr>
</tbody>
</table>

Second majors
You could pursue another science discipline, or explore different perspectives which may include computational and simulation science, innovation and entrepreneurship or science communication.

Minors
- astrophysics
- biotechnology and genetics
- environmental management
- forensic sciences
- industrial chemistry
- human health and disease
- medicinal chemistry and biology
- nanotechnology
- science and mathematics education
- spatial science
- wildlife ecology

You can also choose minors from across the university to provide insights into specific areas. This might also include language studies or an international exchange.

MID-YEAR ENTRY
You can commence this course in February or July, giving you the flexibility to start studying as soon as possible.

DOUBLE DEGREES
- business
- engineering
- games and interactive environments
- information technology
- journalism
- landscape architecture
- law
- mathematics
- professional communication

For more information see pages 37–39.

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2 The availability of evening classes is not guaranteed.

For more detail about this course and OP/selection rank, see the online course information at [www.qut.edu.au/study](http://www.qut.edu.au/study)
VANESSA LUSSINI

Paint is an important protective element in avionics, however repainting too often because it is scheduled adds unnecessary weight to the aircraft. In her PhD, Vanessa Lussini applied her knowledge of organic chemistry to develop a compound that, when mixed with paint, signals when an aircraft needs repainting. Maintenance crews using black light scanners can identify potential weak points where paint has broken down more quickly.

REBECCA AINSCOUGH

I completed a summer exchange at the University of Cambridge, a place I have admired for as long as I can remember. QUT not only gave me credit for this exchange, but contributed financially to support the trip. They also supported me with a bursary when I was one of two students in Australia chosen to attend the World Science Conference held in Israel.
BIOLOGICAL SCIENCES

The study of living things has undergone tremendous expansion in recent years, and topics such as cell biology, neuroscience, evolutionary biology and ecology are advancing rapidly. Biologists contribute to solutions for challenges such as food security, solving our energy crisis and saving species from extinction.

WHY CHOOSE THIS MAJOR?
You will experience some of Australia’s most advanced laboratories and be taught by staff at the top of their research fields internationally. Guest lectures, site visits and work integrated learning opportunities provide industry connections. You will have a strong foundation in the core biological sciences of cell biology, genetics, animal and plant sciences, and microbiology.

CAREER OUTCOMES
Laboratory-based careers include laboratory management, basic research, microbiology or molecular genetics. Field-based work often entails animal management, plant breeding, or pest and disease management. Industrial work can involve biotechnology to produce food, fuel or pharmaceuticals.

PROFESSIONAL RECOGNITION
You may be eligible for membership of the Australian Society for Biochemistry and Molecular Biology, the Ecological Society of Australia, the Australian Society of Horticultural Science and others.

ENVIRONMENTAL SCIENCE

Environmental scientists have the skills required to undertake scientific environmental planning and management, and to tackle problems such as local water quality and ecosystem impacts, soil erosion, catchment and groundwater use, or climate change.

WHY CHOOSE THIS MAJOR?
The course provides you with hands-on skills and field experiences using real-world industry examples and methods to prepare you for your career. You will learn from guest lecturers from relevant government agencies, industry and QUT staff who regularly provide advice for industry, government and community groups.

CAREER OUTCOMES
Environmental scientists work in government departments and agencies, local councils, consultancies, and industrial and mining companies. They may be involved in implementing environmental surveys, analysing and interpreting environmental data, consulting on the environmental impact of mining, tourism and urban development, or rehabilitation and reforestation of degraded sites.

PROFESSIONAL RECOGNITION
You may be eligible for membership of the Environmental Institute of Australia and New Zealand; Soil Science Australia; Clean Air Society of Australia and New Zealand; Society for Ecological Restoration Australasia; Society for Conservation Biology Oceania; Geospatial Information and Technology Association; among others.
Earth science is fundamental to most critical issues facing the health of our planet—such as the supply of energy, minerals and water for technological advancement and a growing population, and the management and mitigation of climate change and natural hazards. Earth scientists work to understand the Earth’s processes, monitor changes and decipher its past to help predict the future.

**WHY CHOOSE THIS MAJOR?**
This course blends problem solving and current research issues with theory and industry-related, hands-on field, laboratory and modelling work. You will gain the fundamental knowledge and skills to pursue a career in the resource, environmental or research sectors.

**CAREER OUTCOMES**
Graduates may be employed in the industrial, government, and academic or education sectors. There is also demand in the energy, exploration and mining sectors and in environmental consulting companies tackling geotechnical, groundwater contamination, natural hazards or climate change issues.

**PROFESSIONAL RECOGNITION**
Graduates are eligible for membership of several professional societies such as the Geological Society of Australia, Australian Institute of Geologists and other overseas professional societies.

### YEAR 1
- common units
- sample the disciplines of biology, chemistry, physics, earth science and environmental science
- quantitative and experimental science
- practical experience in our innovative learning spaces
- the fundamental driving forces of life and planetary evolution

### YEAR 2
- marine geoscience, sedimentary geology and stratigraphy, and destructive and deforming earth
- problem-solving and critical-thinking skills
- practical work and hands-on experience
- choose second major/minor study units and build research capabilities

### YEAR 3
- chemical, geophysical and dynamic earth, energy resources and basin analysis
- major project that showcases your acquired skills
- second major/minor study units

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**KATRINA BOURKE**
Katrina Bourke completed a NASA JPL Caltech internship, and while there carried out calibration and standards testing to prepare for soil sample testing on Mars.

*I started an environmental science degree but at the end of the first year I found my passion for rocks and changed my major. A field trip to New Zealand that included a visit to a recently erupted volcano sealed my interest.*
CHEMISTRY

Chemists are involved in most areas of science, technology, environment and industry. At QUT you will study analytical, physical, organic and inorganic chemistry, and focus on modern applications such as nanotechnology, analytical chemistry and spectroscopy.

WHY CHOOSE THIS MAJOR?
QUT’s chemistry degree is known and respected. Many employers prefer QUT graduates, especially those with an analytical chemistry minor because of their advanced technical skills, and training in modern instrumentation and scientific communication. You will undertake comprehensive laboratory work in this course.

CAREER OUTCOMES
You may work as an industrial chemist, materials scientist, environmental chemist, quality control analyst, laboratory supervisor, food chemist or an organic/inorganic chemist. Other areas include drug development, clay and minerals chemistry, renewable energy sources, nanotechnology, environmental monitoring and applications of modern analytical instrumentation. QUT graduates are also sought after by police and other forensics laboratories.

PHYSICS

Physicists contribute to solutions for global challenges through the development of instruments for environmental monitoring, computer models for climate change prediction, and solar and renewable energy systems. They also improve access to information processing through quantum computing, nanotechnology, lasers and photonics.

WHY CHOOSE THIS MAJOR?
Each unit of your studies is supported by experimental work, so you will spend significant time in the teaching laboratories. In your final year you will undertake research through the Physics Research unit. Areas of specialisation include mechanics, electromagnetism, lasers and optics, medical physics, computational physics, nuclear and radiation physics, astronomy and astrophysics, thermodynamics, quantum mechanics and relativity, and nanotechnology.

CAREER OUTCOMES
Physicists are employed in research and development, management or consulting in manufacturing companies, mining and exploration companies, research institutions such as CSIRO and the Defence Science and Technology Organisation, government bodies, environmental protection and health departments, schools, universities and hospitals.

PROFESSIONAL RECOGNITION
Graduates of the chemistry major with the chemistry for industry second major are eligible for membership of the Royal Australian Chemical Institute.

PROFESSIONAL RECOGNITION
Graduates are eligible for membership of the Australian Institute of Physics, dependent on their choice of study options.

For more detail about these courses including units, visit www.qut.edu.au/study
In my first semester in the Bachelor of Science, I completed the unit Quantitative Methods in Science. This gave me the skills to do real-world research and I co-authored a conference paper in robotics in the following semester. QUT has helped me develop my research toolbox and has supported me as early as possible to flourish in a number of research environments.
Whether you want to deliver sustainable environments for a growing population or advise on the use, value, and management of property, there is considerable employment demand for urban development professionals.

**WHY CHOOSE URBAN DEVELOPMENT AT QUT?**

Our industry connections mean your studies are innovative and relevant, mirroring trends and developments in the field. The integrated honours year allows you to further develop your skills, get real experience and make industry contacts before graduating with an advanced qualification.

**REAL-WORLD TEACHERS**

Your teachers include real-world researchers involved in major commercial and government projects, part-time lecturers from local industry, and Queensland’s first planner in residence.

**WE ARE CONNECTED, AND SO ARE YOU**

QUT is proud to be a research partner with the Sustainable Built Environment National Research Centre. QUT also hosts the Construction Industry Institute of Australia, which is focused on the needs of the property, design, construction and facility management sectors. These real-world connections mean your qualification addresses the most current and emerging issues.

**PREPARED FOR YOUR CAREER**

You will go on field trips, participate in site visits and undertake industry placement. In your final year, you will complete a significant research project, integrating all of the skills you’ve learnt throughout your degree.

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**THE HONOURS EDGE**

QUT’s urban development degree includes honours-level content integrated throughout the course. The advanced knowledge and skills will benefit you in your professional career, or future research and study.

**CREATE YOUR FUTURE**

Your course is flexible so you can maximise your employment opportunities and pursue areas of interest through your choice of second major or minor options.

**YOUR URBAN DEVELOPMENT DEGREE**

- **Urban development core units**
  - 6 units

- **Primary major**
  - 18 units

  Choose one from construction management, quantity surveying and cost engineering, or urban and regional planning

- **Complementary study**
  - 8 units

  Second major or two minors

**DOUBLE DEGREES**

- construction management with architecture or interior architecture
- urban and regional planning with landscape architecture

For more information see pages 37–39.

**PROPERTY ECONOMICS**

Our suite of urban development programs also includes the Bachelor of Property Economics. This degree is one of the few specialised property courses in Australia. You’ll gain industry accreditation with flexibility to match study selections to your career goals. You may also be eligible to advance into the one-year honours program, offering a higher level of study and research.

**MID-YEAR ENTRY**

You can commence the Bachelor of Urban Development (Honours) and the Bachelor of Property Economics in February or July, giving you the flexibility to start studying as soon as possible.

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**MELLINI SLOANE**

QUT lecturer

Through our award-winning partnership with Brisbane City Council, we match our students with mentors and facilitate participation in BCC’s Tertiary Youth Work Experience program. QUT’s relationships with industry allow our students to undertake placements with a wide range of industry-leading organisations, giving you the opportunity to work on real projects. These experiences, along with authentic learning in units throughout our courses, help open doors to exciting careers in Queensland, interstate and overseas.

For more detail about these courses and OPs/selection ranks, see the online course information at [www.qut.edu.au/study](http://www.qut.edu.au/study)
Construction managers coordinate and supervise the construction of large building projects such as apartments, office blocks, commercial buildings, schools and hospitals. They organise subcontractors and equipment, estimate costs and quantities of materials needed, plan construction methods and procedures, and ensure quality, cost and safety standards are met.

WHY CHOOSE THIS MAJOR?
QUT’s construction management course is considered one of the best in Australia and is highly ranked internationally. Teaching staff have real-world experience and maintain engagement with industry professionals and organisations. Lectures and tutorials are often delivered by the industry’s best frontline professionals. You will also undertake professional practice, work on case studies and attend site visits to become a valuable work-ready graduate.

CAREER OUTCOMES
You may be employed in private organisations such as large construction and development companies or consultancies, or government departments.

PROFESSIONAL RECOGNITION
The course is accredited by the Australian Institute of Building.

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<th>Year 1</th>
<th>Year 2</th>
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<tbody>
<tr>
<td>key points</td>
<td>key points</td>
</tr>
<tr>
<td>• understanding the built environment</td>
<td>• commercial construction, construction-related law and building services engineering</td>
</tr>
<tr>
<td>• introduction to construction management, structures and residential construction, urban development economics and law, building measurement and integrated construction</td>
<td>• building measurement, estimating, design and business skills</td>
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<td></td>
<td>• second major or minor study units</td>
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<table>
<thead>
<tr>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>key points</td>
<td>key points</td>
</tr>
<tr>
<td>• high-rise construction and advanced structural and formwork design</td>
<td>• strategic construction management, programming and scheduling, advanced construction management and research methods</td>
</tr>
<tr>
<td>• business skills, contract management and construction legislation</td>
<td>• a major project that showcases your acquired skills</td>
</tr>
<tr>
<td>• second major/minor study units and build research capabilities</td>
<td>• second major/minor study units</td>
</tr>
<tr>
<td>• work integrated learning</td>
<td></td>
</tr>
</tbody>
</table>
QUANTITY SURVEYING AND COST ENGINEERING

Quantity surveyors and cost engineers provide advice to the construction industry on the financial and legal aspects of construction and the operation of existing buildings. They may be involved with the resource and infrastructure sectors advising on and managing cost.

WHY CHOOSE THIS MAJOR?
The course offers a comprehensive range of study to prepare you for your career. There are opportunities for field trips, site visits, and practical and laboratory-based work.

CAREER OUTCOMES
Graduates are employed on major public or private construction projects in the areas of contracts, planning and scheduling, estimating and cost controls, risk management, and supply chain and procurement. You may find employment with engineering and project management firms, government departments or authorities, building contractors, financiers or property developers.

PROFESSIONAL RECOGNITION
The course has accreditations with the Australian Institute of Quantity Surveyors, the Royal Institution of Chartered Surveyors, and the Board of Quantity Surveyors Malaysia.

APPLYING FOR THIS COURSE
Apply for the Bachelor of Urban Development (Honours) (Construction Management), QTAC code 412312. Your first year will provide you with important foundation units and from second year you specialise in quantity surveying and cost engineering and will graduate with a Bachelor of Urban Development (Honours) (Quantity Surveying and Cost Engineering).

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• understanding the built environment&lt;br&gt;• introduction to quantity surveying and cost engineering, heavy engineering and residential construction, urban development economics and law, building measurement and integrated construction</td>
<td>• complex construction techniques, methodologies and management issues&lt;br&gt;• commercial construction, measurement, estimating and services, and heavy engineering&lt;br&gt;• second major or minor study units</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>• high-rise construction and technical aspects of construction activity&lt;br&gt;• business skills, contract administration, and cost planning and controls&lt;br&gt;• second major/minor study units and build research capabilities&lt;br&gt;• work integrated learning</td>
<td>• advanced concepts of quantity surveying and cost engineering, risk management in the resource sector and research methods&lt;br&gt;• a major project that showcases your acquired skills&lt;br&gt;• second major/minor study units</td>
</tr>
</tbody>
</table>

For more detail about these courses and OPs/selection ranks, see the online course information at www.qut.edu.au/study

RACHEL MAWN

I help manage a range of construction projects and deliver premium quality properties. My main focus is large-scale brownstone renovations in Manhattan, Brooklyn and Jersey City. The construction projects transform a space into a beautiful home while restoring and preserving historic architecture. I chose to study urban development as I’ve always been intrigued by the complex methodology and mass scale of construction. QUT taught me that opportunities will always be available if you work hard and are open to them.
Urban and regional planners design and manage the use of land and natural resources to meet future human needs in a sustainable way. They plan large-scale projects such as cities, suburbs, ports, recreational and industrial areas, and transport routes.

WHY CHOOSE THIS MAJOR?
QUT is recognised for combining community involvement with design and implementation. You will work on projects run in collaboration with local and state government partners, developers and local community groups. Complement your planning knowledge with studies in urban design, property economics, architecture, landscape architecture, law or business management.

CAREER OUTCOMES
You will have employment opportunities internationally, and in state and local government departments and agencies, development companies and professional planning consultancies. Career choices include urban design, transport planning, development assessment, plan preparation for housing and industrial areas, open space and recreational planning, environmental protection, and social and economic development.

Professional Recognition
This course has accreditation from the Planning Institute of Australia.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
</table>
| • understanding the built environment  
  • introduction to planning and design, urban development economics and law, urban analysis and land-use planning | • site planning, planning-related law and planning processes  
  • business skills in negotiation and conflict resolution  
  • second major or minor study units |
| Year 3 | Year 4 |
| • application of urban design skills and principles on a broader scale  
  • environmental analysis and planning, and transport planning  
  • second major/minor study units and build research capabilities  
  • work integrated learning | • planning theory and ethics, and real-world planning projects from community to regional level  
  • advanced urban and regional planning and research methods  
  • a major project that showcases your acquired skills  
  • second major/minor study units |

Lazarus Cinnabar grew up with a fascination for cities and how they were created. He now works with the Victorian Government Department of Environment, Land Water and Planning.

I love working on major transport projects that are helping to improve public transport and reduce congestion. It’s great knowing that I am making a contribution to the development of metropolitan Melbourne.
BACHELOR OF PROPERTY ECONOMICS

2018 OP (including adjustments) 12
2018 selection rank (including adjustments) 73
QTAC code 412322
Campus Gardens Point
Duration 3 years full time
Assumed knowledge English (4 SA) and Maths A, B or C (4 SA)
OP Guarantee Yes
Entry February and July

The property sector is one of Australia’s largest industries and second largest employer. Property economists are skilled in the ownership, management, investment, valuation and development of a range of property types. Property economists are experts in optimising the returns and performance of this specialist asset class.

WHY CHOOSE THIS COURSE?
QUT offers one of the few specialised property courses in Australia. Property economics at QUT is concerned with all aspects of property with a focus on finance, the commercial property market sector, sustainable development, and environmental and energy efficiency. You will gain hands-on, practical experience to supplement your theoretical knowledge.

MID-YEAR ENTRY
You can commence this course in February or July, giving you the flexibility to start studying as soon as possible.

CAREER OUTCOMES
You will have career opportunities to work in your own private enterprise or as an employee in property valuation, property consultancy, strategic advice, real estate, banking and finance, property management and funds management in both the public and private sectors.

DOUBLE DEGREES
• architecture
• interior architecture

For more information see pages 37–39.

PROFESSIONAL RECOGNITION
This degree has professional accreditation from the Australian Property Institute, the Valuers’ Registration Board of Queensland, the Royal Institution of Chartered Surveyors, and the Board of Valuers, Appraisers and Estate Agents Malaysia.

Year 1
• introduction to land management, sustainability, construction, economics, law and fundamental property valuation practice
• collaborative projects with other students

Year 2
• analysis of property markets, investment, property development and asset management
• land and property transactions
• written and verbal communication to a professional standard

Year 3
• collaborate with students in related disciplines to determine the feasibility of a hypothetical development project
• property finance and advanced valuation, and research expertise
• guest lectures from leading industry practitioners and industry-focused workshops
• elective major and minor units and a property project

Year 4

PROPERTY ECONOMICS

DANIEL O’DRISCOLL
While studying, I worked across the retail and commercial asset classes in QIC’s real estate business. I found that the course material directly linked to everyday deliverables within the workplace. Now as an investment analyst with QIC Global Real Estate, my skillset has expanded including playing an integral role in the $550 million expansion of the Grand Central Shopping Centre in Toowoomba. QUT is renowned for bringing industry experience to the lecture theatre and for me this was a key reason for choosing QUT.
DOUBLE DEGREES

WHY CHOOSE A STEM DOUBLE DEGREE?

There are so many great reasons to study a double degree with STEM. You can combine study areas that meet your individual motivations, as well as your talents and interests. You’re always going to do much better at something you are passionate about.

<table>
<thead>
<tr>
<th>Combine a degree in</th>
<th>with a degree in</th>
<th>Career opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>Architecture</td>
<td>There is a range of fields to explore due to the global nature of these industries including architecture, project management, property development, construction, civil engineering and urban design.</td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>With technical engineering expertise and business management skills you will be equipped to plan, design, construct and manage engineering projects. You may also work in management, finance or consulting.</td>
</tr>
<tr>
<td></td>
<td>Industrial design</td>
<td>With skills in creating and developing innovative, attractive, sustainable and user-friendly products and systems, you may work in fields such as mechanical engineering, transport, service development or manufacturing.</td>
</tr>
<tr>
<td></td>
<td>Information technology</td>
<td>Your combined skills in engineering and IT will enable you to work as an information security specialist, computer systems engineer, software engineer or electrical engineer.</td>
</tr>
<tr>
<td></td>
<td>Interaction design</td>
<td>You may work in fields including product design, product development, structural engineering, transport engineering and consultancy.</td>
</tr>
<tr>
<td></td>
<td>Landscape architecture</td>
<td>Work in private practice or in government at all levels, in roles such as structural engineer, geotechnical engineer, landscape architect and environmental engineer.</td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
<td>With engineering capabilities and skills in mathematical modelling, analysis and design, you’ll be well-equipped to help solve complex problems in aerospace avionics, biomechanical engineering, data science, data management and research.</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>You may find employment in energy consultancy, environmental engineering, medical engineering or natural resource management.</td>
</tr>
</tbody>
</table>

WHY CHOOSE A STEM DOUBLE DEGREE?

The job market is constantly changing. With a double degree, you’ll develop specialist skills and knowledge across two complementary fields. Combine your STEM studies with another study area for an even wider range of career opportunities.

You’ll develop a range of transferable skills you can use in almost any occupation or industry. These transferable skills—communication, interpersonal, critical thinking, problem-solving and adaptability skills—are becoming increasingly important to employers in today’s competitive job market.

DEANNA HOOD

I loved the way that my mathematics and engineering degrees interacted. The skills are really compatible and you end up with a unique mindset having studied in two areas. I’ve been able to apply my knowledge to positively impact society. For example, I worked on a USB stethoscope for diagnosing pneumonia in developing countries and a robotic partner for children with handwriting difficulties.

See pages 43–45 for OP/selection rank, campus, assumed knowledge and entry requirements.
For more details about these courses including course structure and units, visit www.qut.edu.au/study
<table>
<thead>
<tr>
<th>Combine a degree in</th>
<th>with a degree in</th>
<th>Career opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Games and interactive environments</td>
<td>Business</td>
<td>You may work in roles such as project manager, production manager, producer, content manager, business development manager, product manager or marketer.</td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
<td>You can put your skills to use as an actuary, game developer, content designer, sound designer, or in quantitative analysis.</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>You will have opportunities in the areas of forensic biology, geology, natural resource management, ecology and bioengineering. Use virtual reality and gaming technology to tackle issues such as soil degradation and the environmental impacts of mining, or map the spread of disease in animal populations.</td>
</tr>
<tr>
<td>Information technology</td>
<td>Business</td>
<td>Your combined skills provide opportunities for careers such as technical consultant, chief information officer, systems analyst or brand strategist.</td>
</tr>
<tr>
<td></td>
<td>Creative industries</td>
<td>Merging your creative and imaginative skills with sophisticated and innovative critical thinking will give you opportunities in content production, communications, graphic design and games development.</td>
</tr>
<tr>
<td></td>
<td>Digital media</td>
<td>Develop a career in web design, graphic design, web application development, illustration, video production, game design, project management or social media management.</td>
</tr>
<tr>
<td></td>
<td>Interaction design</td>
<td>Work in a range of creative and commercial industries including advertising, education and gaming, or in cultural institutions. Roles may include interactive media designer, usability specialist, information architect or graphic designer.</td>
</tr>
<tr>
<td></td>
<td>Law</td>
<td>You will have opportunities in the areas of cyberlaw, intellectual property and legal regulation of the internet, or work as a computer professional specialising in legal applications, information systems or security.</td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
<td>You can apply your combined skills to fields including programming, data communications, business process management, software engineering and telecommunications.</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>You may work in roles including scientific modeler, software developer, scientific programmer and computational scientist.</td>
</tr>
<tr>
<td></td>
<td>Secondary education</td>
<td>Work in a range of roles and industries applying new technologies to business or education enterprises. You can also work as a secondary school teacher in two teaching areas, one being information technology. This course will be offered from 2019, subject to final approval.</td>
</tr>
<tr>
<td>See also engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>Business</td>
<td>Apply your combined skills to areas including finance, investment, economics, environmental management, health, marketing, logistics, defence, media education and research.</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>With skills in modelling analysis and design, you may work in a range of fields including natural resources, agriculture, genetics, chemistry and biochemistry, infection and disease control, bioinformatics, physical measuring and imaging techniques.</td>
</tr>
<tr>
<td>See also engineering, games and interactive environments, information technology</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**KARTHIK GOUNDER**

QUT was my first preference as it offered the double degree that I wanted—IT and business. I was impressed by the number of industry links offered, enabling me to start networking early in my degree. QUT also offers opportunities for students to connect with these industry professionals through the classroom.
<table>
<thead>
<tr>
<th>Combine a degree in</th>
<th>with a degree in</th>
<th>Career opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property economics</td>
<td>Architecture</td>
<td>In the competitive property and building industry, having design skills combined with sound economic intelligence is highly valued. Being able to research, develop, value and design property for investment is attractive to employers in commercial and government sectors.</td>
</tr>
<tr>
<td></td>
<td>Interior architecture</td>
<td>Combine your creative eye with investment acumen to optimise returns and manage the performance of properties. You’ll be valued in both the private and public sectors.</td>
</tr>
<tr>
<td>Science</td>
<td>Business</td>
<td>Gain employment as a consultant, laboratory manager, venture capitalist financier, marketer or project manager within firms developing and taking scientific research to the marketplace.</td>
</tr>
<tr>
<td></td>
<td>Journalism</td>
<td>With a growing demand for science communicators, you may expect a range of employment opportunities within the public and private sector.</td>
</tr>
<tr>
<td></td>
<td>Landscape architecture</td>
<td>Combining science with landscape architecture will enhance your understanding of environmental impacts of mining, tourism and urban development, and your capabilities in the rehabilitation and reforestation of degraded sites.</td>
</tr>
<tr>
<td></td>
<td>Law</td>
<td>You may work in careers involving inventions, trade secrets, quantitative evidence, genetic modification and environmental law.</td>
</tr>
<tr>
<td></td>
<td>Professional communication</td>
<td>Your skills in effective visual, speech and written communication will give you an advantage within your chosen science career. You will be equipped for roles across corporate, policy, and government sectors and have the expertise to communicate scientific concepts, research and outcomes.</td>
</tr>
<tr>
<td>Urban development</td>
<td>Architecture</td>
<td>Combining architecture with construction management will make you a valuable architect and project manager in the building industry. You’ll develop abilities in design, costing and supply management, logistics and negotiation.</td>
</tr>
<tr>
<td></td>
<td>Interior architecture</td>
<td>Combine your creativity with skills in construction management to design, plan and manage the construction, renovation or enhancement of internal spaces. You could work as a consultant for small to medium enterprises, or with major architecture, design or building firms.</td>
</tr>
<tr>
<td></td>
<td>Landscape architecture</td>
<td>Urban and regional planning combined with landscape architecture will enable you to work with private developers, government bodies and communities to enhance established neighbourhoods, and shape new suburbs, cities and regions.</td>
</tr>
</tbody>
</table>

Ben McGhee

Mechatronics is a great complement to IT. I chose to do a double degree so I could improve my skills and knowledge in both areas. I have the same contact hours each week as my friends doing single degrees, but I get to study two areas that I love. My degree also allowed me to study for six months at the Technische University Berlin. I studied machine learning and cognitive algorithms from some of the best experts in the world.

See pages 43–45 for OP/selection rank, campus, assumed knowledge and entry requirements. For more details about these courses including course structure and units, visit www.qut.edu.au/study.
HONOURS PROGRAMS

BACHELOR OF INFORMATION TECHNOLOGY [HONOURS]
Campus Gardens Point
Duration 1 year full time, 2 years part time
Entry February and July

BACHELOR OF MATHEMATICS [HONOURS]
Campus Gardens Point
Duration 1 year full time, 2 years part time
Entry February and July

BACHELOR OF SCIENCE [HONOURS]
Campus Gardens Point
Duration 1 year full time, 2 years part time
Entry February and July

BACHELOR OF PROPERTY ECONOMICS [HONOURS]
Campus Gardens Point
Duration 1 year full time, 2 years part time
Entry February and July

WHY CHOOSE HONOURS?
If you have an enquiring mind, take your passion further and extend your studies with an honours research program in your chosen field.

An honours degree builds on your undergraduate degree studies, providing further depth of knowledge and analytical skills you can apply throughout your career. It offers opportunities to cultivate research and development skills. Through a combination of research and advanced coursework units, you can pursue specialised studies in particular areas of interest. You can work with cutting-edge technology, and access specialist facilities, laboratories, hardware and software.

Honours is an ideal pathway for high-achieving graduates to enter the doctoral program (PhD), and provides a wider range of career opportunities including research, analytic or teaching positions.

An honours degree can be undertaken in most of the faculty’s study areas. Consult your course coordinator in second or third year to assess what projects may be available within your areas of interest.

ENTRY REQUIREMENTS
To be eligible for an honours course, you must have a bachelor degree in information technology, mathematics, science or property economics (depending on the course) or its equivalent, completed within the last five years, with a minimum grade point average of 4.5 (on QUT’s 7-point scale).

COURSE DESIGN
Each course has the option of an expanded research or extended coursework stream which is chosen depending on your area of research, and in collaboration with your supervisor. The core of the honours program is a research project that will provide you with the opportunity to learn about research by conducting a project with an experienced researcher who acts as both supervisor and mentor.

You will learn the types of processes, creativity and analytical thinking that lead to advances in society and how to communicate such findings in a rigorous, systematic manner.

ENGINEERING AND URBAN DEVELOPMENT HONOURS
The Bachelor of Engineering (Honours) and the Bachelor of Urban Development (Honours) feature embedded honours-level content throughout the course and you will graduate with a bachelor honours degree. This advanced knowledge and skills will benefit your professional career or future research and study.

LOUIS VAN DYKE
PhD candidate

My honours degree gave me the skills I need for full-time research. I also gained a strong network of role models and supervisors. Towards the end of my undergraduate degree I was lucky enough to pick up a sessional teaching position for a first-year IT unit. This uncovered my love for tertiary education and introduced me to the breadth of academic roles, including research. From here, I moved into the IT honours degree and the rest is history.
DISTINGUISHED PROFESSOR KERRIE MENGersen

Big data and statistics

Professor Kerrie Mengersen led a QUT team into the jungle to work on a pioneering project aimed at ensuring the survival of the jaguar. Working with the ARC Centre for Excellence for Mathematical and Statistical Frontiers and the Peruvian-based Lupunalus Foundation, the project combines mathematical modelling, statistics, virtual technology and indigenous knowledge to protect the big cats.

We went into the belly of the jungle to find out as much as we could from local people and gather evidence about jaguars in this remote part of Peru. Learning about where jaguars live and hunt, their prey, and the pressures from mining, logging and other human interaction, helps us build mathematical and statistical models to make informed decisions.

QUT ROBOT DEFENDING THE REEF

QUT roboticists have developed the world’s first robot to seek out and control the Great Barrier Reef’s crown-of-thorns starfish (COTS), which are responsible for an estimated 40 per cent of the reef’s coral decline. Dr Matthew Dunbabin and Dr Feras Dayoub have demonstrated COTSbot can autonomously detect and fatally inject COTS and are now working with philanthropists to adapt the robot for use by citizen scientists in coastal communities.
1. FIND THE COURSE THAT SUITS YOU

Visit www.qut.edu.au/graduate-success to research courses online and take the Match My Skills quiz.

If you would like to experience university first-hand by studying units while you are in high school, consider the START QUT program. Visit www.qut.edu.au/startqut

2. CHECK THE ADMISSION REQUIREMENTS

To be eligible for admission to QUT you must have completed Australian Year 12 (or equivalent), or be aged 17 years or older and be applying on the basis of previous study or work/life experience.

How selection is made For most QUT courses you will be selected on the basis of an OP or selection rank. Exceptions may apply to some courses with additional entry requirements. OPs and selection ranks used in this publication are from the January 2018 QTAC offer round and are the lowest OP/selection rank to which an offer was made inclusive of any adjustment factors (equity, elite athlete or subject adjustments). Published thresholds should be used as a guide only. Thresholds can change from year to year depending on the number of applications, the standard of the applicants (OP/selection rank) and the number of places available in the course (quota). For more information about OPs/selection ranks see the online course information at www.qut.edu.au/study

Additional entry requirements

Some courses have additional entry requirements. For details visit www.qut.edu.au/additional-entry

Assumed knowledge For most courses, QUT has an assumed knowledge scheme for domestic students. This means that we don’t use specific school subjects as entry criteria for our courses, however we assume you have the knowledge either through high school subjects or bridging courses. You may struggle with your studies if you don’t have this knowledge.

If you do not have the assumed knowledge we strongly recommend completing a bridging course through QUT or other recognised providers. Visit www.qut.edu.au/assumed-knowledge

English language proficiency You must demonstrate that you can speak, write, read and comprehend academic English to a specific standard. If you have an Australian Year 12 qualification, you meet the English proficiency standards. If your first language is not English and you have not previously undertaken either senior schooling, higher study, or significant professional work experience in the English language as recognised by QUT, you will be required to demonstrate your English language proficiency. Visit www.qut.edu.au/assumed-knowledge

OP and International Baccalaureate Guarantee If you receive an OP 1–5, a selection rank of 93 or better, or an International Baccalaureate Diploma score of 33 or better, you will be offered a place in courses participating in the OP Guarantee. This means that when you find out your OP or selection rank you can assess your eligibility for a QUT course before receiving an offer. You still need to lodge a QTAC application by the closing date.

3. INVESTIGATE THE ADMISSION PATHWAYS

Your background You may have different entry options depending on your background, such as Year 12, vocational education and training (VET), higher education study or work experience. Selection ranks can be assigned to each of your individual qualifications and experience. QUT will generally use the best of the OP/selection ranks to assess your eligibility. Exceptions may apply to some courses including courses with additional entry requirements. Visit www.qut.edu.au/study/entry-pathways

Selection rank adjustments You may be eligible for selection rank adjustments, making you more competitive for a course offer. Adjustments are available for educational disadvantage, elite athletes and specific subjects. The maximum possible adjustment is 10 selection ranks (equivalent to five OPs) across all entry schemes. Adjustments may not apply to all courses. Visit www.qut.edu.au/special-entry

Aboriginal and Torres Strait Islander people The Oodgeroo Unit’s Centralised Assessment Selection Program is an entry program that assists Aboriginal and Torres Strait Islander applicants by recognising life experiences, any study undertaken, and skills, commitment and potential. If you have identified via QTAC as an Indigenous Australian and list QUT in your top three preferences, the Oodgeroo Unit will contact you. Financial and study support is also available. Visit www.qut.edu.au/about/oodgeroo

Domestic students with overseas qualifications QUT will consider equivalent recognised overseas qualifications for admission purposes. If you have secondary or tertiary qualifications from countries where English (as recognised by QUT) is not the standard language of instruction, you must provide evidence of English language proficiency. For more information contact QTAC—www.qtac.edu.au

4. CHECK THE COSTS AND SCHOLARSHIPS

Course costs are published on the QUT website by 1 October each year. Check the course information at www.qut.edu.au/study

QUT is proud to offer a broad range of scholarships to recognise and support students and we encourage you to apply. For more information see page 6 or visit www.qut.edu.au/scholarships

5. APPLY FOR ENTRY

Applications for QUT undergraduate courses are made through the Queensland Tertiary Admissions Centre (QTAC) online service. For more information visit www.qut.edu.au/international

International students completing Year 12 studies in Australia must apply through QTAC. All other international students must apply directly to QUT or through one of our authorised agents or representatives. For full details visit www.qut.edu.au/international or phone (Australia Freecall) 1800 181 848.

6. ACCEPT YOUR OFFER

You will be notified by QTAC if you receive an offer. Once you have accepted your QTAC offer, you can enrol online at QUT. Visit www.qut.edu.au/study/after-qtac

QUT allows domestic applicants to defer the start of their study for one year, except in courses using specific admission requirements such as portfolio, audition, prior study or work experience, or where course changes do not permit deferment. In special circumstances, QUT may grant a further deferment of up to 12 months. Visit www.qut.edu.au/deferment
# SCIENCE AND ENGINEERING AT A GLANCE

## Single degrees

<table>
<thead>
<tr>
<th>Course</th>
<th>Campus</th>
<th>QTAC code</th>
<th>Duration (years)</th>
<th>Assumed knowledge</th>
<th>2018 OP Guarantee</th>
<th>2018 selection rank (including adjustments)</th>
<th>OP Guarantee</th>
<th>Determent</th>
<th>Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>B Engineering (Honours) with majors in Chemical Process, Civil, Computer and Software Systems, Electrical, Electrical and Aerospace, Mechanical, Mechatronics, Medical Engineering</td>
<td>GP</td>
<td>412502</td>
<td>4F</td>
<td>English (4 SA) and Maths B (4 SA) Recommended study; Physics, Maths C and Chemistry</td>
<td>10</td>
<td>78</td>
<td>Yes</td>
<td>Yes</td>
<td>February July</td>
</tr>
<tr>
<td>B Games and Interactive Environments with majors in Animation, Game Design, Software Technologies</td>
<td>GP</td>
<td>418102</td>
<td>3F</td>
<td>English (4 SA) and Maths A, B or C (4 SA)</td>
<td>11</td>
<td>76</td>
<td>Yes</td>
<td>Yes</td>
<td>February</td>
</tr>
<tr>
<td>B Information Technology with majors in Computer Science, Information Systems</td>
<td>GP</td>
<td>418801</td>
<td>3F or 6P</td>
<td>English (4 SA) and Maths A, B or C (4 SA)</td>
<td>11</td>
<td>76</td>
<td>Yes</td>
<td>Yes</td>
<td>February July</td>
</tr>
<tr>
<td>B Mathematics with majors in Applied and Computational Mathematics, Decision Science, Statistical Science</td>
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## Engineering double degrees

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### Urban development double degrees

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QUT continually updates its courses to ensure relevance to the real world and to maximise choice and flexibility for students. For the latest, in-depth course information visit [www.qut.edu.au/study](http://www.qut.edu.au/study)

### Footnotes

- F = full time
- P = part time
- GP = Gardens Point
- KG = Kelvin Grove

**1** The availability of evening classes is not guaranteed.
- Chemistry, Physics, Biology, Earth Science, Geography or Maths C.
- From 2019, we plan to offer a double degree with secondary education and information technology, subject to final approval.
- For information about Bachelor of Education subject prerequisites visit [www.qut.edu.au/prerequisites](http://www.qut.edu.au/prerequisites)
- This course has additional entry requirements. Visit [www.qut.edu.au/additional-entry](http://www.qut.edu.au/additional-entry)
- 4 SA indicates that you must have studied the subject over four semesters and achieved an overall exit assessment of sound achievement or better.
- For information about interstate, TAFE or bridging course subjects that are equivalent to the assumed knowledge subjects visit [www.qut.edu.au/assumed-knowledge](http://www.qut.edu.au/assumed-knowledge)

The OP/selection rank shown is the lowest to receive an offer in the January 2018 offer round inclusive of adjustment factors, such as equity or subject adjustments. For more information about the OP/selection rank thresholds see the online course information at [www.qut.edu.au/study](http://www.qut.edu.au/study)

The 2018 OP and selection rank threshold should be taken as a general indication only. Courses may be harder or easier to get into from year to year, depending on demand for the available places.

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International students
This publication has been prepared for Australian students and those with permanent resident status. Some courses are not open to international students. To check the courses that are available for international student entry, or for more information about QUT, visit www.qut.edu.au/international

CRICOS No. 00213J