



# Science and Mathematics

Undergraduate Courses 2020

No. **1**  
UTS ranked  
Australia's  
#1 young\* uni



# Welcome to the Faculty of Science

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 UTSScience

 UTSScience

 UTS\_Science

### Acknowledgement of Country

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UTS acknowledges the Gadigal People of the Eora Nation and the Booroberongal People of the Dharug Nation upon whose ancestral lands our campuses stand. We would also like to pay respect to the Elders both past and present, acknowledging them as the traditional custodians of knowledge for these Lands.

# Why science and maths at UTS?

Choose to study at UTS and give your career in science or maths the best possible start.

## OUR DIFFERENCE

When you choose UTS, you'll be choosing a university that takes a fresh approach to the study of science and maths. We offer world-class teaching and purpose-built facilities with industry-standard equipment. Most importantly, we give you hands-on practice, and connections to industry that will put you in the best possible position to secure a job after (or even before!) graduation.

## GO PLACES, IN OR OUTSIDE THE SCIENCE INDUSTRY

Our science degrees will not only earn you a qualification in your chosen field of science. They also help you gain the soft skills – communication, critical thinking – that'll prepare you for a multitude of careers all over the world. This means you'll have the technical skills for a career within the scientific industry, as well as skills that can be applied outside of the industry. See page 4 for examples of where our graduates are working – you'll be surprised where a degree in science will take you.

## GET HANDS-ON EXPERIENCE

The best place to get real experience? In the real world. At UTS Science, we'll push you beyond the safety net of the classroom. Dive into hands-on projects that'll build your technical expertise and pursue internships with our industry partners in a range of scientific, business and government organisations.

## LEARN FROM THOUGHT LEADERS

As a student, you want to be guided by those in the know. The good news? Our teaching team is comprised of maths and science leaders who are actively advancing their fields of enquiry. They're researchers, practitioners and industry experts – and they're committed to helping you achieve your goals.

## INDUSTRY STANDARD FACILITIES

Our campus facilities are just like our courses: purpose built, innovative, and designed with specific outcomes in mind. Study in our Super Lab, build forensic skills in our Crime Scene Simulation Lab, or hone your health care expertise in our Chinese Medicine Clinic. Whichever degree you choose, we've got a purpose-built learning space to maximise your uni experience.

## RESEARCH THAT HAS IMPACT

Immerse yourself in a world-leading research community where life-changing discoveries are taking place. At UTS, our research focuses on areas that matter, such as climate change, infectious diseases, and crime reduction. Not only do we focus on areas that can create impact, we're ranked at world standard by the Excellence in Research for Australia initiative. In fact, our work in chemical sciences, material chemistry, environmental sciences and genetics were given the highest possible score, putting us on par with some of the world's leading institutions.



# A super lab, a crime house, and more

**UTS has invested over \$110 million to its science facilities, making it one of the best in Australia. Between specialised labs and field stations, you'll be studying in world-class facilities.**

## **SUPER LAB**

It's Australia's first multidisciplinary super lab, and it can accommodate over 200 students across 12 different classes at a time. Whether you're solving physics problems or conducting chemistry experiments, you'll be immersed in a uniquely collaborative environment that's supported by high-level technologies.

## **CRIME SCENE SIMULATION LAB**

It might look like a city apartment, but the Crime Scene Simulation Lab is much more than that. Gain hands-on experience with fingerprinting, evidence collection and a range of detection techniques and get a taste for life as a forensic investigator.

## **STROUD FIELD STATION**

Our science facilities expand much further than what's on our campus. Stroud provides environmental and marine students access to forests, rivers, bugs and animals in their natural environment, which is essential to our courses. Students also take their learning to research sites such as Heron Island, One Tree Island and the Great Barrier Reef.

## **CHINESE MEDICINE CLINIC**

Deliver acupuncture, Chinese herbal medicine and remedial massage treatments to real patients in our public-facing Chinese Medicine Clinic. It's all part of the UTS Science commitment to hands-on practice.

## **MATHS AND COMPUTING FACILITIES**

Mathematics and statistics students access industry-standard software, e-learning support and advanced computing facilities. UTS collaborates closely with the Australian Centre for Advanced Computing and Communication (Ac3).

## **SURGICAL AND ANATOMICAL SCIENCE FACILITY**

Anatomy and physiology students learn at one of Australia's foremost dedicated human anatomical laboratories – alongside researchers and commercial industry partners. You'll be studying on real cadavers that have been donated to science, learning from highly skilled technical and academic staff who also train current and future doctors and surgeons.

## **RESEARCH LABS**

We're known for producing highly applied research that transforms big ideas into outcomes that shape the world. At UTS, we believe it's never too early to start your research career. Many of our research laboratories are open to students at undergraduate level of study, so you can engage with knowledge as it happens.

## **TEACHING LABS**

No matter what you study, our teaching labs will support your learning journey. They're fitted out with the latest in scientific and analytical equipment, as well as e-lecterns and computers. Whether you're studying nanotechnology or marine biology – UTS has specialised teaching facilities for you.



# Careers in science and maths – more than what you think

Think broad, think big – career opportunities in science abound.

## REWARDING CAREERS, IN OR OUTSIDE OF A LAB

Fight climate change with renewable energies, use biostatistics to help people live longer and healthier lives, or work at the forefront of new discoveries that lead to the next generation of nano-materials. As a scientist, you can use knowledge to change the world for good.

Interested in life outside the lab? Pursue scientific and professional roles across a wide range of industries, including business, government, law, health, food and agriculture, mining and construction, and education.

## THE EMPLOYER'S GRADUATE

Scientific knowledge? It's always in demand. In fact, 75 per cent\* of the fastest-growing occupations require expertise in science, technology, engineering and maths (STEM). At UTS Science, we'll equip you with STEM specific skills, but we won't stop there: you'll also gain critical interpersonal and practical skills, such as problem-solving, numerical literacy, analytical thinking, and the ability to build lasting professional relationships. You'll graduate with a tool-kit of expertise that you can apply just about anywhere.

## MAKE YOUR FIRST MILLION

Ready to make a million bucks? According to the Grattan Institute, as a bachelor's degree holder you'll make up to \$1.4 million more over the course of your working life than your peers who don't go to uni. But that's not all: with a degree from a technology university like UTS, you're also likely to obtain an additional lifetime income advantage of approximately 6 per cent\*\* – that's some pretty decent money over the course of your career.

## CRUNCHING THE NUMBERS

Okay, but when it comes to cold, hard cash, what's a science degree really worth? According to Open Universities Australia, you're likely to make between \$55,000-\$120,000 p.a. as a working scientist, depending on the discipline you choose. But science is just one of the (many) career paths you can pursue with your degree – you can also apply your expertise to other fields, such as science editing, stockbroking, policy analysis or patent law, which will open the door to a new range of salary options. For more career ideas, check out our UTS Science Careers Guide at

[science.uts.edu.au/future](http://science.uts.edu.au/future)

\*The Australian Industry Group, Progressing STEM Skills in Australia, March 2015.

\*\*Mapping Australian Higher Education 2014-15.

## Michael Walz

Bachelor of Science (Nanotechnology),

Bachelor of Engineering

Asset Data and Reporting Engineer, Veolia Australia and New Zealand



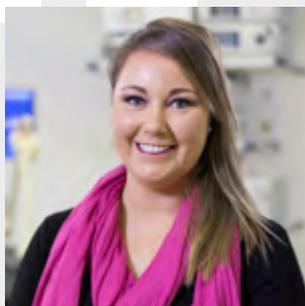
“At Veolia, my role is to deal with all the process and systems surrounding the capture, processing and reporting of data critical to effective asset management.”

Our goal is to reduce the long-term costs of running the infrastructure. As the needs of the business are always changing, there's always a new question and a new problem to solve.

The most beneficial skill that I learnt from studying science was the knowledge of how to approach problems. It is not about applying a formula and getting an answer, but about understanding why you are getting that answer. This ability to approach problems in this way has helped me significantly throughout my career.”

## Clare Bodimeade

**Bachelor of Biomedical Science in Forensic Biology**  
**Territory Manager Arthroplasty, Stryker**

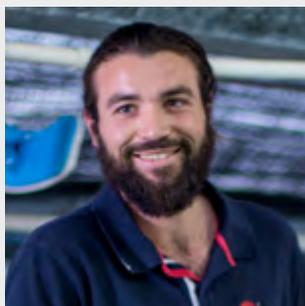


“My job sees me working with orthopaedic surgeons, nurses and other hospital staff in the planning and execution of joint replacement surgeries. I really enjoy working with such hard working, highly intelligent, diverse people. I am very fortunate to be able to see some fantastic surgeries that really change people’s lives.

My time both studying and working at UTS was a really positive experience. I was encouraged to think critically and examine the evidence before me – both physical evidence in the case of my forensics study, but also to analyse data presented. I also found the academic staff at UTS approachable and very keen to assist if anyone had a query.”

## Justin Tierney

**Bachelor of Marine Biology**  
**Fisheries Technician, Port Stephens Fisheries Institute**



“Volunteering with the NSW Department of Primary Industries and with PhD students granted me an opportunity to work with the Australian Fisheries Management Authority, Gosford City Council and now the Department of Primary Industries.

As a Fisheries Technician, I work in a dynamic work environment. Most experiments run for an average of 6-8 weeks, which means I’m able to learn new sampling techniques every couple of months. Being able to implement more efficient system design strategies and seeing them work is also really rewarding.

UTS not only provided me with the theoretical and practical skills essential for my varying roles, but also the confidence necessary to undertake these skills in the work environment. This came from being able to implement both the theory and practical parts in the field.”

## Jasmine Tan

**Bachelor of Mathematics and Finance**  
**(similar to Bachelor of Science in Analytics)**  
**Senior Consultant, Deloitte**



“My role is very much project based, so my day-to-day activities are always changing. Sometimes I’m assessing debt structures that I believe a client would benefit from, working through a client’s regulatory requirements, or even building fundamental risk structures from the ground up. I regularly meet new people and it’s a very rewarding experience delivering valuable insights to my clients.

Since graduating, I’ve been applying the skills I learnt at UTS throughout my career. A mathematician’s skill set doesn’t lie with the number of formulas you can memorise, but rather in the approach and way of thinking about problems. This way of thinking can be applied to everyday situations and problems. I also learnt how to take complex problems and translate them in a way that others can easily understand, which is a very helpful skill to have.”

# Science & maths degrees at UTS

At UTS Science, we offer five types of undergrad degrees:

- Bachelor of Advanced Science
- Bachelor of Science
- Specialist degrees, e.g. Bachelor of Biotechnology
- Combined degrees
- Honours degrees

The type of degree you choose will depend on what area of science you're interested in, and how you want to study. Here's what you need to know.

## BACHELOR OF ADVANCED SCIENCE

The Bachelor of Advanced Science has research focus, which means you'll complete a number of research subjects that relate to your chosen major. As well as building fundamental research skills, you'll also have the chance to take a deep dive into a single scientific discipline.

But there's more to an advanced science degree than slogging away in the lab. You'll also be mentored by world-leading research scientists who are committed to training the next generation of leaders in the field. As well as seeing your theoretical knowledge come to life, you'll gain industry-relevant skills while you're on the job.

## BACHELOR OF SCIENCE

The Bachelor of Science spans the breadth of scientific practice – with a choice of 10 majors, it's got something for everyone, no matter where your interests lie. The course structure is similar to that of our specialist degrees, but it's slightly more flexible: it offers a broad choice of electives, plus there's more scope to switch majors, which makes it a great choice if you're not yet sure where you want to specialise.

## SPECIALIST DEGREES

Already know what sort of scientist you want to be? Specialist degrees like the Bachelor of Medical Science or the Bachelor of Marine Biology are for students like you. For the most part, the course structure is the same as a Bachelor of Science, except that it gives you the chance to double down on your passions – for example, if you choose the Bachelor of Biotechnology, you'll be able to specialise in a niche area of biotechnology practice, which means you'll be building focused expertise from early in your degree.

## COMBINED DEGREES

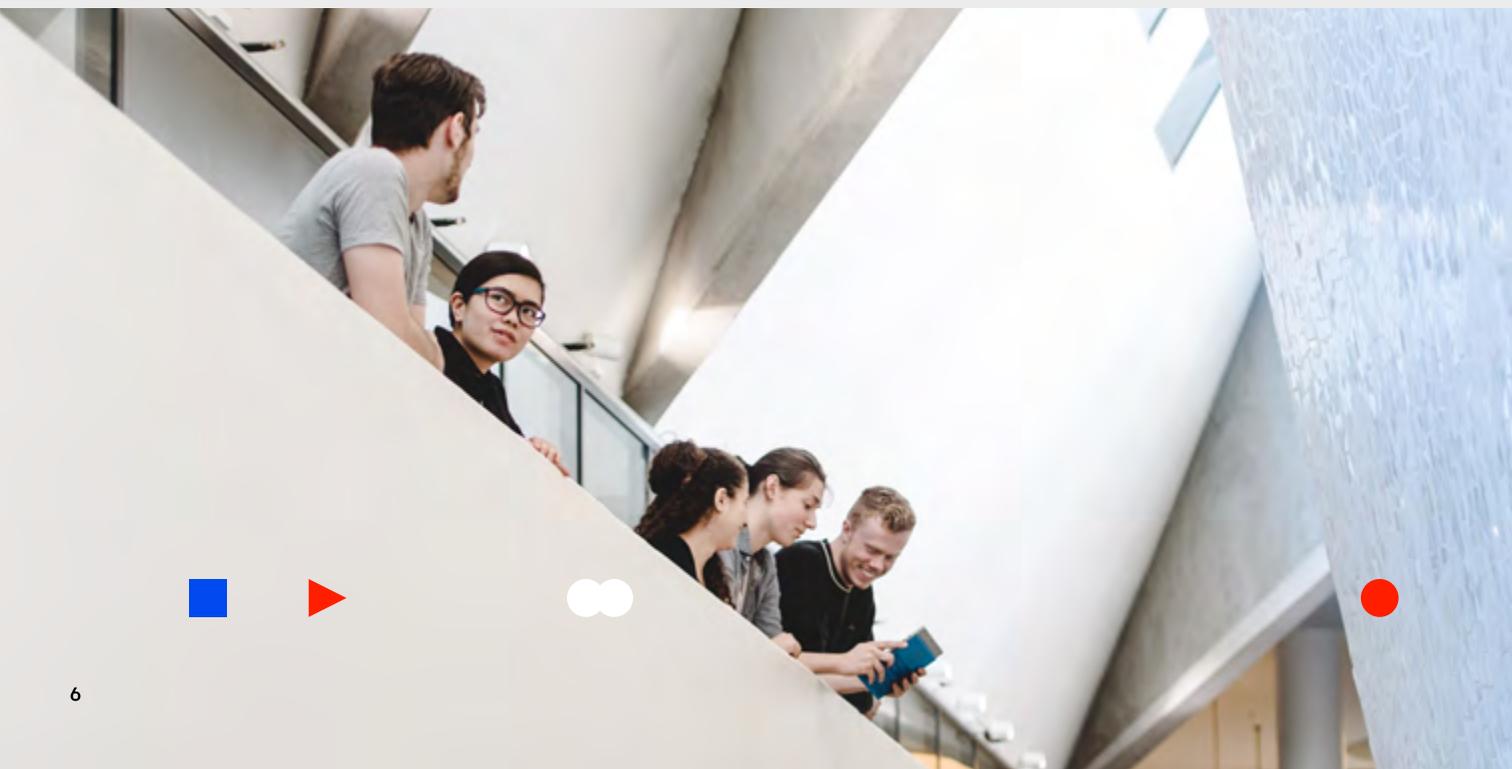
With a combined degree, you'll build skills and experience in two professional disciplines – like science and business, or science and international studies, or science and law, to name a few – and graduate with two qualifications. The upshot? You'll have double the skills and double the industry appeal – not a bad bet when it comes time to look for work!

And there's one more bit of good news: A combined degree takes less time to complete than if you studied the same two degrees one after the other. This is the result of studying fewer subjects – for example, if you combine a science degree with a business degree, you'll only study one business major rather than the two you'd have to complete if you studied a Bachelor of Business on its own.

## HONOURS DEGREES

High achiever or ready for research? An honours degree could be right up your alley. These degrees involve an additional year of study where you'll consolidate your learning by completing a research project. An honours year is a great way to build additional expertise that'll set you apart from the crowd.

Find out more about studying an honours degree at [uts.edu.au/honours-program](https://uts.edu.au/honours-program).



# Which course is right for me?

All our courses will help you build skills, expertise and hands-on experience, as well as critical capabilities like problem-solving, creative thinking and an interdisciplinary approach to practice. But when it comes to choosing a degree, it can be tricky to decide which one is right for you. Read on to find out more about each of our areas of study and the courses available in each.

## MATHEMATICS, PHYSICS, ANALYTICS AND STATISTICS

Love maths? Learn how to apply mathematical models to solve problems in any industry. Whether you're interested in diagnostics, computer modelling, or using data to drive business growth, this growing area of science could be where you belong.

### Course options in mathematics, physics, analytics, and statistics:

Course name	Selection rank	Page number
Bachelor of Advanced Science (Advanced Materials and Data Science)	97.00	9
Bachelor of Science (Nanotechnology)	72.15	10
Bachelor of Science (Applied Physics)	71.25	11
Bachelor of Biomedical Physics	91.55	12
Bachelor of Science (Mathematics)	76.70	13
Bachelor of Science (Statistics)	76.70	14
Bachelor of Science (Analytics)	88.70	15
Bachelor of Science (Flexible) - Physical Sciences	75.60	40

## CHEMISTRY AND FORENSICS

CSI buff, budding chemist or microbiologist in the making? A degree in chemistry or forensics can take you from the lab to the courtroom and everywhere in between. Depending on the course you choose, you could find yourself studying digital forensics, cybercrime, pharmacology, cell biology or analytical, physical and organic chemistry.

### Course options in chemistry and forensics:

Course name	Selection rank	Page number
Bachelor of Science (Chemistry)	74.80	18
Bachelor of Medicinal Chemistry	84.75	19
Bachelor of Forensic Science	85.35	20

## BIOTECHNOLOGY

As a biotechnologist, the sky's the limit – this rapidly expanding field of science is all about using technology to aid biological processes, improve human health and protect the environment. In all our biotech degrees, you'll learn to manipulate the biological processes of living organisms, giving you the skills to develop new medicines, food and organic substances – not a bad way to do good in the world.

### Course options in biotechnology:

Course name	Selection rank	Page number
Bachelor of Advanced Science (Environmental Biotechnology)	91.60	23
Bachelor of Biotechnology	85.45	24
Bachelor of Science (Biotechnology)	76.20	26

## MEDICAL AND HEALTH SCIENCES

Put yourself at the frontier of medical innovation with a degree in medical sciences. Specialise in human anatomy, disease processes, diagnostics, or complementary medicines, or use your learning as a basis for a career in medicine or pharmacy.

### Course options in medical science:

Course name	Selection rank	Page number
Bachelor of Advanced Science (Infection and Immunity)	94.10	28
Bachelor of Advanced Science (Pre-Medicine)	95.15	29
Bachelor of Advanced Science (Pharmaceutical Sciences)	92.55	30
Bachelor of Science (Biomedical Science)	76.20	31
Bachelor of Biomedical Science	80.15	32
Bachelor of Science (Medical Science)	76.20	33
Bachelor of Medical Science	87.05	34
Bachelor of Health Science in Traditional Chinese Medicine	90.10	35

## ENVIRONMENTAL SCIENCES

Interested in studying interactions between plants, animals and the environment, the functioning of ecosystems, and the impact of human activities on the natural world? These degrees will help you become an environmental scientist with the most up-to-date skills for a wide range of careers in management, conservation and more. As climate change starts to make its mark, there's never been a better time to use your smarts as a tool to protect the planet.

### Course options in environmental science:

Course name	Selection rank	Page number
Bachelor of Environmental Biology	72.40	37
Bachelor of Marine Biology	79.50	38
Bachelor of Science (Environmental Sciences)	73.75	39
Bachelor of Science (Flexible) - Life and Environmental Sciences	75.60	40

# Mathematics, analytics and physics

## More than numbers

As well as being the key to numerical problems, maths is the basis of all science. It sits at the heart of our understanding of fundamental concepts like geometry, gravity, motion, time and space – the very things we depend on to make sense of the world we live in.

As a mathematician, the sky's the limit – analytical and maths skills are required across almost every industry. Want proof? Our graduates are working as analysts, stock market advisers, economists and data scientists across the science, business, technology sectors, to name a few. But don't just take our word for it – check out [careers.amsi.org.au](http://careers.amsi.org.au) to see how your maths skills can be applied beyond the classroom.

## Matter, energy and beyond

At UTS, we see physics as a tool to expand the frontiers of technology. A degree in physics or nanotechnology will see you working in specialised microlabs and developing

experiments based on the interaction of matter and energy that have genuine potential to do good in the world. From nanotechnology and molecular physics to sustainable energy and meteorology, a physics degree can get you where you want to go.

## Careers that can take you anywhere

The applications of maths and physics are endless – and so are the career opportunities. In fact, six of the top 10 jobs identified by Career Cast 2018 (including mathematician, statistician, data scientist and actuary) require a solid grounding in maths. Whether you're a pure maths or physics person (or both!), your skills will likely fit the bill. What's more, these are also some of the highest paying jobs on the market – the Institute of Analytics Professionals of Australia (IAPA) Skills and Salary Survey showed that data scientists earn an average of \$190k p.a., while Australian Jobs 2018 listed maths-related careers as having some of the strongest growth rates around.

## Research that matters

According to the Australian Research Council, science research at UTS is ranked at or above world standard in every single discipline. Be inspired by the work we're doing to generate clean energy and energy efficient materials, drive the development of next-generation forensic techniques, and harness statistical methods and modelling to solve global health challenges.

## Find your people

We get it – numbers and atoms aren't for everyone, but if they're your thing, you'll find likeminded souls at the UTS Maths and Science Study Centre. Share your knowledge and attend drop-in sessions for help with your assessments or exam prep, or just pop in and say hi – it's a great space for people who share your passions.

## Stephen Woodcock

Senior Lecturer, School of Mathematical and Physical Sciences



**An applied mathematician and footy lover, Stephen Woodcock is using his expertise in numbers to develop practical and simple solutions to real-world problems. Stephen's research projects have covered a vast range of applications, from improving the design and efficiency of wastewater treatment systems, to understanding and modelling the growth of biofilms on riverbeds.**

Currently he's modelling the biogeography around the Great Barrier Reef, calibrating and analysing data collected to measure ocean health.

Stephen is a keen and committed teacher who mentors high school, undergraduate, postgraduate and higher degree research students. He has a unique ability to communicate how maths can be applied to many life scenarios, and is known for using his love of sport to teach maths to the public.

Recently, Dr Woodcock was recognised in the 2017 Australian Awards for University Teaching, for the development of curricula and resources to foster enquiry-oriented and research inspired thinking in the applied mathematical sciences.

# Bachelor of Advanced Science (Advanced Materials and Data Science)

<b>2019 Selection rank*:</b>	97.00
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607058
<b>UTS course code:</b>	C10347
<b>Assumed knowledge:</b>	Year 12 Mathematics, two units of Science and any two units of English

## COURSE DESCRIPTION

Metals, textiles and other materials are the foundation of much of modern civilisation. Be a driving force for a new generation of advanced materials that deliver ground-breaking solutions to contemporary challenges. Think new solar cells and water purification tools, nanomaterials that protect against disease, and detection and biodefense innovations that keep Australia safe. This is a research-focused degree, so you'll complete four research subjects under the guidance of highly accomplished academics in the advanced materials field, and you'll also spend significant time in the lab. As a result, you'll gain essential skills and knowledge in the properties and development of materials, learn how to measure and test their properties using a range of experimental techniques, and get to grips with using the computer simulations that enable their design. You'll also build expertise in data science, with an emphasis on computational and mathematical skills.

## CAREER OPTIONS

Prepare for a career in a range of government, defence and commercial organisations, or see your data science skills to drive business improvement in a range of non-technical fields. Jobs include materials scientist, researcher, product developer, inventor, developer of clean energy technologies such as solar cells, water purification products, and materials that support health and security technologies.

## WHERE UTS GRADS ARE WORKING

ANZ Bank, Australian Defence Force, Bureau of Meteorology, Defence Science and Technology Organisation, KPMG, Nova Corporation, Orica Ltd, PwC, Woodside Energy, Australian Synchrotron, NASA, ANSTO, Secondary Schools, Australian Institute of Physics, Australasian College of Physical Scientists and Engineers, Australian Research Council, Australian Institute of Physics and Institute of Microelectronics, universities worldwide.

For more career options, visit [science.uts.edu.au/future](https://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Foundations of Physics	Linear Algebra	Programming for Data Analysis
Mathematical Modelling for Science	Mathematics for Physical Science	Solid-state Science and Nanodevices
Chemistry 1	Advanced Research Project 1	Advanced Research Project 3
Chemistry and Materials Science	Programming Fundamentals	Nanophotonics
Physics in Action	Quantum Physics	Advanced Research Project 4
Statistics and Mathematics for Science	Optics	Elective x 3
Chemistry 2 (Advanced)	Advanced Research Project 2	
Research Methods	Elective x 1	

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Bachelor of Science (Nanotechnology)

<b>2019 Selection rank*:</b>	72.15
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607007
<b>UTS course code:</b>	C10242
<b>Professional recognition:</b>	Australian Institute of Physics (AIP)
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Physics, Chemistry, Maths, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

Explore the world in nanoscale with a degree that's all about atoms, molecules and the interaction of condensed light. Once an emerging field, nanotechnology now sits at the frontier of new and soon-to-be-released developments in medicine, sustainability and computing, to name a few. Think targeted drug delivery systems, energy-efficient window coatings, smart materials that respond to their surroundings, microchips and DNA computers. You'll study biology, physics and chemistry as they relate to the nanoscale, and embark on mentored, lab-based projects that might include automated electronics experiments, chemical self-assembly of nanostructures, and the building of optical nanophotonics instrumentation. You'll also gain hands-on training with nanotechnology tools, as well as analytical, critical and problem-solving skills that will be key to your success as a scientist.

## CAREER OPTIONS

Materials scientist, polymer scientist, composite technologist, investment advisor, nanotechnologist, science teacher, academic, technical officer, imaging specialist, research associate or assistant, drug delivery researcher, nanolithographer, platform project officer.

## WHERE UTS GRADS ARE WORKING

BluGlass RPCVD technology, Pilkington, Wattyl Paints, Australian Defence Force, Bureau of Meteorology, Defence Science and Technology Organisation, KPMG, Woodside Energy, Australian Synchrotron, NASA, ANSTO, Higher Education Sector, Secondary Schools, Australian Institute of Physics, Australasian College of Physical Scientists and Engineers, Australian Research Council, Australian Institute of Physics and Institute of Microelectronics.

For more career options, visit [science.uts.edu.au/future](http://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Mathematical Modelling for Science	Mathematics for Physical Science	Applied Electronics and Interfacing
Chemistry 1	Physical Chemistry 1	Molecular Nanotechnology
Foundations of Physics	Nanomaterials	Solid-state Science and Nanodevices
Principles of Scientific Practice	Bionanotechnology	Surface Processes
Chemistry 2	Quantum Physics	Nanophotonics
Statistics and Mathematics for Science	Optics	Scanning Probe and Electron Microscopy
Introduction to Materials	Electives x 2	Electives x 2
Physics in Action		

# Bachelor of Science (Applied Physics)

<b>2019 Selection rank*:</b>	71.25
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607009
<b>UTS course code:</b>	C10242
<b>Professional recognition:</b>	Australian Institute of Physics
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Physics, Chemistry, Maths, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

If you want to use your smarts to change the world, there are few better ways to do it than with a career in physics. Physics is the study of interactions between matter and energy, so this degree is all about getting to grips with the universe and its limitless – and often hidden – potential. You'll combine theory and practice with mentored laboratory experience where you'll learn to see physics as a tool to expand the frontiers of technology. For example, you could develop automated electronics experiments, build optical nanophotonics instrumentation, or create virtual environments using computational physics. Want more? We'll also help you to build rock-solid critical and analytical thinking capabilities, as well as the ability to apply them in a hands-on environment.

## CAREER OPTIONS

Conservator, metallurgist, meteorologist, physicist, coal geologist, sensory biophysicist, atmospheric and environmental physicist, atomic and molecular physicist, medical and health physicist, nanotechnologist, optical physicist, noise consultant, materials analyst or scientist, biophysics consultant, energy and sustainability researcher.

## WHERE UTS GRADS ARE WORKING

Energy companies like Energy Australia or Origin Energy, Australian Defence Force, Bureau of Meteorology, Defence Science and Technology Organisation, KPMG, MasterFoods Australia, NASA, ANSTO, higher education sector, secondary schools, Australian Institute of Physics, Australasian College of Physical Scientists and Engineers, Australian Research Council, Australian Genome Research Facility (AGRF), Australian Institute of Physics, Institute of Microelectronics (IME), federal and state government departments, and medical research facilities/hospitals.

For more career options, visit [science.uts.edu.au/future](https://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Mathematical Modelling for Science	Nanomaterials	Applied Electronics and Interfacing
Chemistry 1	Energy Science and Technology	Solid-state Science and Nanodevices
Foundations of Physics	Mathematics for Physical Science	Computational Physics
Principles of Scientific Practice	Advanced Mechanics	Nanophotonics
Chemistry 2	Quantum Physics	Scanning Probe and Electron Microscopy
Statistics and Mathematics for Science	Optics	Measurement and Analysis of Physical Processes
Introduction to Materials	Elective x 2	Elective x 2
Physics in Action		

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Bachelor of Biomedical Physics

<b>2019 Selection rank*:</b>	91.55
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607070
<b>UTS course code:</b>	C10275
<b>Recommended year 12 subjects:</b>	Year 12 Mathematics, two units of Science and any two units of English

## COURSE DESCRIPTION

Combine your passion for physics with the latest advances in biomedical science in a degree that builds core skills across a wide range of scientific disciplines. This course has a strong focus on practical and lab-based skills, including capabilities in computer modelling, instrumentation and experimentation. For example, you'll learn to apply mathematical models to problems, develop electronic and optical instrumentation, and use nanoparticles as diagnostic and therapeutic agents. You'll also embark on a mentored research project as part of a research team. The upshot? You'll emerge with a big picture view of the opportunities for application in field of biomedical physics. Think radiation oncology, medical imaging, radiation safety, diagnostic and therapeutic nanotechnology, and instrumentation development, to name a few.

## CAREER OPTIONS

Prepare for careers at the interface between physics and biomedicine, including radiation oncology, medical imaging, radiation safety, imaging technology and the medical instrumentation industry. It also provides a pathway to postgraduate studies in medical physics and medicine.

## WHERE UTS GRADS ARE WORKING

Medical equipment suppliers & manufacturers, medical research institutes, hospitals, universities, ANSTO, CSIRO.

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Principles of Scientific Practice	Mathematics for Physical Science	Solid-state Science and Nanodevices
Chemistry 1	Applied Electronics and Interfacing	Medical Imaging Technology
Mathematical Modelling for Science	Biomedical Physics Methodology	Biomedical Physics Project
Foundations of Physics	Cell Biology and Genetics	Advanced Medical Device Technology
Chemistry 2	Imaging Science	Electives x 4
Statistics and Mathematics for Science	Quantum Physics	
Human Anatomy and Physiology	Bionanotechnology	
Physics in Action	Human Pathophysiology	

# Bachelor of Science (Mathematics)

<b>2019 Selection rank*:</b>	76.70
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607003
<b>UTS course code:</b>	C10346
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Maths, 2 units of English

## COURSE DESCRIPTION

Purist? With a mathematics degree, you can indulge your passion for the fundamentals of science and learn to apply your maths expertise to knowledge in almost any industry. Build skills in mathematics, analysis and design of experiments, sample surveys, quality control, quantitative methods in management and finance, logistics, modelling techniques and mathematical foundations. The best bit? You can customise your degree to suit your interests, choosing from a wide range of core, sub-major and elective subjects.

## CAREER OPTIONS

Financial consultant, valuer, quantity surveyor, banker, investment analyst, computer programmer, intelligence analyst, airport traffic analyst, mathematical modeller, science or maths teacher, stock market advisor/analyst, portfolio manager, insurance pricing analyst, market research analyst, policy advisor, quantitative analyst, forensic accountant, taxation consultant, treasurer or economist.

## WHERE UTS GRADS ARE WORKING

APRA, Australian Bureau of Statistics, McKinsey & Company, Woolworths, Bureau of Meteorology, the NASDAQ Stock Market, Deloitte, IBM, First NZ Capital, Colonial First State, Insurance Australia Group, Productivity Commission, the Linfox Group, NSW Transport, the Aerospace Corporation, Applied Mathematics, Inc., National Institute of Standards and Technology, Boeing, 3M, Commonwealth Bank, ANZ Bank & other banking and financial institutions.

For more career options, visit [science.uts.edu.au/future](http://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Introduction to Quantitative Management	Linear Algebra	Advanced Calculus
Principles of Scientific Practice	Optimisation in Quantitative Management	Elective x 2
Introduction to Linear Dynamical Systems	Simulation Modelling	<b>Select two of the following:</b>
Introduction to Statistics	Differential Equations	<ul style="list-style-type: none"> <li>- Quantitative Management Practice</li> <li>- Design and Analysis of Experiments</li> <li>- Programming for Data Analysis</li> </ul>
Regression Analysis	Programming for Informatics	<b>Select three of the following:</b>
Foundation subject choice B	Elective x 2	<ul style="list-style-type: none"> <li>- Mathematical Methods</li> <li>- Nonlinear Methods in Quantitative Management</li> <li>- Network and Combinatorial Optimisation</li> <li>- Stochastic Processes</li> <li>- Discrete Mathematics</li> <li>- Sample Surveys</li> <li>- Advanced Statistical Modelling</li> </ul>
Introduction to Mathematical Analysis and Modelling	<b>Select one of the following:</b>	
Probability and Random Variables	<ul style="list-style-type: none"> <li>- Mathematical Methods</li> <li>- Nonlinear Methods in Quantitative Management</li> <li>- Network and Combinatorial Optimisation</li> <li>- Stochastic Processes</li> <li>- Discrete Mathematics</li> <li>- Sample Surveys</li> <li>- Advanced Statistical Modelling</li> </ul>	

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# Bachelor of Science (Statistics)

<b>2019 Selection rank*:</b>	76.70
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607003
<b>UTS course code:</b>	C10242
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Physics, Chemistry, Maths, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

In 2017, the global population produced 2.5 quintillion bytes of data a day – understanding how to collect, harness and interpret that data is critical to delivering positive outcomes that impact people, populations, organisations and the environment. As a statistics student, you'll learn how to design data collection in a way that delivers maximum information, and you'll also gain the skills you need to interpret it successfully – for example, decoding customer behaviours and preferences. You'll study both the theory and practice of statistics, and you'll learn to apply your knowledge across a diverse range of sectors including market research, finance, health and the environment.

## CAREER OPTIONS

Market researcher, quantitative data analyst, financial consultant, valuer, quantity surveyor, investment analyst, systems analyst, banker, statistician (medical, sports, surveys), mathematics teacher, academic, statistical modelling analyst.

## WHERE UTS GRADS ARE WORKING

CSIRO, Garvan Institute of Medical Research, Lockheed Martin, Australian Bureau of Statistics, Data Analysis Australia, Department of Defence, Deloitte, Roche Australia, AC Nielsen, News Poll, NSW Bureau of Crime Statistics & Research, NSW Bureau of Health Information, Commonwealth Bank, Westpac, ANZ, NAB, IAG Limited, PwC, Allianz and universities around the world.

For more career options, visit [science.uts.edu.au/future](https://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Introduction to Quantitative Management	Linear Algebra	Advanced Calculus
Principles of Scientific Practice	Optimisation in Quantitative Management	Elective x 3
Introduction to Linear Dynamical Systems	Simulation Modelling	<b>Select one of the following:</b>
Introduction to Statistics	Differential Equations	– Design and Analysis of Experiments
Regression Analysis	Introduction to Programming Mathematics	– Programming for Data Analysis
Foundation subject choice B	Elective x 1	<b>Select one of the following:</b>
Introduction to Mathematical Analysis and Modelling	<b>Select two of the following:</b>	– Sample Surveys
Probability and Random Variables	– Sample Surveys	– Advanced Statistical Modelling
	– Advanced Statistical Modelling	– Stochastic Processes
	– Stochastic Processes	– Analytics Capstone
		<b>Select two of the following:</b>
		– Mathematical Methods
		– Nonlinear Methods in Quantitative Management
		– Network and Combinatorial Optimisation
		– Stochastic Processes
		– Discrete Mathematics
		– Sample Surveys
		– Advanced Statistical Modelling

# Bachelor of Science (Analytics)

<b>2019 Selection rank*:</b>	88.70
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607080
<b>UTS course code:</b>	C10384
<b>Assumed knowledge:</b>	Year 12 Mathematics, two units of English
<b>Recommended studies:</b>	Mathematics Extension 1

## COURSE DESCRIPTION

As the world continues to produce ever-growing quantities of information, organisations of all shapes and sizes are increasingly seeking analytics expertise to help drive business growth. With the Bachelor of Science in Analytics, you'll work at the intersection of mathematics, statistics, operations research, business and computing. You'll study key areas of business activity, complete core studies in quantitative analytics and data analytics, and build analytical skills and technical knowledge in one of four areas of major study – Consumer Analytics, Operations Analysis, Risk Management, or Financial Mathematics.

The 24 subjects or 144 credit points of the degree are comprised of:

- Eight subjects or 48 credit points in the Quantitative Analytics stream
- Four subjects or 24 credit points in the Data Analytics stream
- Eight subjects or 48 credit points in your chosen major
- Four electives or four subjects in a sub-major choice (equal to 24 credit points)

## CAREER OPTIONS

Data scientist, data analyst, business analyst, market researcher, logistics manager, credit risk manager, stock market analyst, financial portfolio manager, financial risk manager.

## WHERE UTS GRADS ARE WORKING

Google, media and marketing companies, professional services and consulting firms, banks, insurance companies, superannuation providers, government regulatory bodies such as APRA and ASIC.

For more career options, visit [science.uts.edu.au/future](http://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
<b>Consumer Analytics Major</b>		
Introduction to Linear Dynamical Systems Introduction to Quantitative Management Introduction to Statistics Regression Analysis Marketing Foundations Introduction to Mathematical Analysis and Modelling Probability and Random Variables Introduction to Programming Mathematics	Consumer Behaviour Database Fundamentals Linear Algebra Design and Analysis of Experiments <b>Select 24 credit points from the following:</b> <ul style="list-style-type: none"> <li>– Electives (24cp)</li> <li>– Operations Analysis (24cp)</li> <li>– Risk Management (24cp)</li> <li>– Financial Mathematics (24cp)</li> </ul>	Marketing Research Introduction to Data Analytics Programming for Data Analysis Sample Surveys Analytics Capstone Advanced Statistical Modelling <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>– e-Business Trading</li> <li>– Object-relational Databases</li> <li>– Database Programming</li> </ul> <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>– e-Business Trading</li> <li>– Advanced Data Analytics</li> <li>– Object-relational Databases</li> <li>– Database Programming</li> </ul>

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YEAR 1	YEAR 2	YEAR 3
<b>Operations Analysis Major</b>		
Introduction to Linear Dynamical Systems Introduction to Quantitative Management Introduction to Statistics Regression Analysis Managing People and Organisations Introduction to Mathematical Analysis and Modelling Probability and Random Variables Programming for Informatics	Database Fundamentals Linear Algebra Optimisation in Quantitative Management <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- Business and Organisational Strategy</li> <li>- Global Operations and Supply Chain Management</li> <li>- Understanding Organisations: Theory and Practice</li> </ul> <b>Select 24 credit points from the following:</b> <ul style="list-style-type: none"> <li>- Electives (24cp)</li> <li>- Consumer Analytics (24cp)</li> <li>- Risk Management (24cp)</li> <li>- Financial Mathematics (24cp)</li> </ul>	Introduction to Data Analytics Programming for Data Analysis Non-linear Methods in Quantitative Management Network and Combinatorial Optimisation Analytics Capstone <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- e-Business Trading</li> <li>- Object-relational Databases</li> <li>- Database Programming</li> </ul> <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- Sample Surveys</li> <li>- Simulation Modelling</li> </ul> <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- e-Business Trading</li> <li>- Advanced Data Analytics</li> <li>- Object-relational Databases</li> <li>- Database Programming</li> </ul>
<b>Risk Management Major</b>		
Introduction to Linear Dynamical Systems Introduction to Quantitative Management Introduction to Statistics Regression Analysis Fundamentals of Business Finance Introduction to Mathematical Analysis and Modelling Probability and Random Variables Programming for Informatics	The Financial System Database Fundamentals Linear Algebra Simulation Modelling <b>Select 24 credit points from the following:</b> <ul style="list-style-type: none"> <li>- Electives (24cp)</li> <li>- Consumer Analytics (24cp)</li> <li>- Operations Analysis (24cp)</li> <li>- Financial Mathematics (24cp)</li> </ul>	Introduction to Data Analytics Design and Analysis of Experiments Advanced Data Analytics Sample Surveys Advanced Statistical Modelling Analytics Capstone <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- e-Business Trading</li> <li>- Advanced Data Analytics</li> <li>- Object-relational Databases</li> <li>- Database Programming</li> </ul> <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- e-Business Trading</li> <li>- Object-relational Databases</li> <li>- Database Programming</li> </ul>
<b>Financial Mathematics Major</b>		
Introduction to Linear Dynamical Systems Introduction to Quantitative Management Introduction to Statistics Regression Analysis Fundamentals of Business Finance Introduction to Mathematical Analysis and Modelling Probability and Random Variables Programming for Informatics	The Financial System Database Fundamentals Linear Algebra Simulation Modelling <b>Select 24 credit points from the following:</b> <ul style="list-style-type: none"> <li>- Electives (24cp)</li> <li>- Consumer Analytics (24cp)</li> <li>- Operations Analysis (24cp)</li> <li>- Risk Management (24cp)</li> </ul>	Introduction to Data Analytics Advanced Calculus Optimisation in Quantitative Management Differential Equations Stochastic Processes Analytics Capstone <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- Database Programming</li> <li>- Programming for Data Analysis</li> </ul> <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- e-Business Trading</li> <li>- Advanced Data Analytics</li> <li>- Database Programming</li> <li>- Programming for Data Analysis</li> </ul>

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# Chemistry and forensic science

## Chemistry – the heart of science

Chemistry is the science of matter, and it sits at the heart of most modern scientific advances. As a chemist, you'll have the chance to make important contributions to research and development which require their unique set of interdisciplinary skills. Chemists have roles in a variety of industries: food, medicine, cosmetics, oil, mining, agricultural, pharmaceutical and drug development, construction, environmental management, biodiversity conservation and forensic science.

## Where CSI comes to life

It's called the "CSI Effect" – students flocking to chemistry and forensics degrees after watching TV crime shows. The good news? The real world of forensics is much broader and more profound than what you see on screen.

You'll study alongside professional forensic scientists who are transforming our justice, pharmaceutical, medical and public safety sectors. What's more, you'll come into regular contact with the industry partners who use our labs to conduct their research, such as the Australian Federal Police.

## Real-world experience, hands-on practice

When we talk about hands-on practice, we mean it: at UTS Science, we're committed to providing professional experience opportunities while you study. You'll be encouraged to complete an internship with one of our industry partners, from international forensic institutions and government laboratories to leading pharmaceutical companies and medical research facilities. As well as seeing science in action, you'll also make professional connections, which could be the launching pad you need for your future career.

## Labs that are a cut above

Get ready to study in some world-leading facilities. Our Crime Scene Simulation Lab will enable you to practise your fingerprinting and evidence collection techniques, while our purpose-built chemistry labs contain specialised equipment and technologies to enable you to practice skills in blood analysis, body decomposition, and more.

## Research that protects

Science is a tool for discovery, and discovery drives change. At UTS, our chemistry and forensic science leaders are making a meaningful difference to the foundations of everyday life. Projects include methods to identify infection transmission pathways in order to prevent disease migration, as well as the development of techniques to detect and prevent crime before it happens, among others. What's more, our researchers provide expert advice to intelligence agencies and forensic science labs, so their work is actively improving the way we solve and prosecute crimes.

## Scott Chadwick

Bachelor of Forensic Science (Honours) in Applied Chemistry  
Doctor of Philosophy



**“During my PhD I was very lucky to be able to help out during practical classes which was a real life-changing experience for me. I found I really enjoyed helping students and sharing my knowledge with them.**

As a lecturer, subject coordinator and program director for the Bachelor of Forensic Science, my time is generally divided between teaching, research and administrative duties.

My research area is still within forensic science, so I will often be helping my Honours or PhD students with their work whether it be in the areas of fingerprints, criminalistics or forensic intelligence. I enjoy coming down to the labs or workshop classes and speaking to students about the work they are doing and their experiences at university. I really enjoy being able to talk with students about how they are going and helping them with their work.

In 2016 I was awarded a Vice-Chancellors Teaching and Learning Award for my work in developing students' professional identity in Chemistry 1.”

# Bachelor of Science (Chemistry)

<b>2019 Selection rank*:</b>	74.80
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607005
<b>UTS course code:</b>	C10242
<b>Professional recognition:</b>	Royal Australian Chemical Institute
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Physics, Chemistry, Maths, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

Chemistry is the science of matter, and it sits at the heart of most modern scientific advances. With its dynamic combination of practice and theory, this major will give you an insight into how chemical substances work – and why. You'll gain extensive hands-on lab experience using state of the art instrumentation while exploring the fundamental areas of the discipline: analytical, physical, organic and inorganic chemistry. The course also develops a knowledge base in applied aspects of chemistry such as medicinal chemistry and chemical safety and legislation. You can also use your electives as a sub-major to develop expertise in a second scientific discipline.

## CAREER OPTIONS

A degree in chemistry provides a wealth of opportunity. Chemistry is an interdisciplinary science and has a role in many new and established technologies. Chemists make important contributions to research and development which require their interdisciplinary skills. They have important roles in the food, medical, cosmetic, oil, mining, agricultural, pharmaceutical, chemical, construction and environmental industries, to name a few.

## WHERE UTS GRADS ARE WORKING

Advanced Analytical Australia, CSIRO, Chevron, ANSTO, Australian Genome Research Facility (AGRF), The Australian Centre for Plant Functional Genomics, ALDI, ANZ, Amcor Australasia, Australian Defence Force, Australian Secret Intelligence Service (ASIS), BHP Billiton, Bluescope Steel, Boral Limited, Chevron, Honeywell, Kellogg Brown and Root Pty Ltd (KBR), NSW Fire Brigades, Rio Tinto, Sydney Water, Technip Oceania, Thales Group, Unilever and Visy.

For more career options, visit [science.uts.edu.au/future](http://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Mathematical Modelling for Science Chemistry 1 Foundations of Physics Principles of Scientific Practice Chemistry 2 Statistics and Mathematics for Science Physics in Action <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- Cell Biology and Genetics</li> <li>- Introduction to Materials</li> <li>- Human Anatomy and Physiology</li> <li>- Environmental Chemistry</li> </ul>	Organic Chemistry 1 Skills for the Professional Chemist Physical Chemistry 1 Analytical Chemistry 1 Organic Chemistry 2 Inorganic Chemistry 1 Physical Chemistry 2 Analytical Chemistry 2	Inorganic Chemistry 2 Elective x 4 <b>Select three of the following:</b> <ul style="list-style-type: none"> <li>- Forensic Toxicology</li> <li>- Strategies in Drug Synthesis</li> <li>- Surface Processes</li> <li>- Polymer Science</li> <li>- Analytical Chemistry 3</li> </ul>

# Bachelor of Medicinal Chemistry

<b>2019 Selection rank*:</b>	84.75
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607065
<b>UTS course code:</b>	C10275
<b>Professional recognition:</b>	Royal Australian Chemical Institute
<b>Assumed knowledge:</b>	Year 12 Mathematics, two units of Science and any two units of English

## COURSE DESCRIPTION

Medicinal chemistry is all about the design, discovery and development of new drugs – and it has the potential to transform the health outcomes of populations around the world. This is a research-inspired, transdisciplinary degree that sits at the intersection of chemistry, biology and pharmacology. You'll become a skilled theorist and practitioner across this broad cross section of the sciences, building a solid foundation in chemistry, maths and biology that will help you succeed in your studies – and your career. Explore pharmacology and drug synthesis strategies, work on industry-standard instrumentation, and connect with industry and employers through internships and work experience.

## CAREER OPTIONS

Pharmacologists, toxicologists, clinical trials manager, analytical chemist, microbiologist, biopharmacist, drug developer.

## WHERE UTS GRADS ARE WORKING

Pharmaceutical companies, biotechnology start-ups, hospitals, medical research facilities, universities, and government regulatory authorities.

For more career options, visit [science.uts.edu.au/future](https://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Principles of Scientific Practice	Organic Chemistry 1	Metabolic Biochemistry
Chemistry 1	Physiological Systems	Pharmacology 1
Mathematical Modelling for Science	Physical Chemistry 1	Strategies in Drug Synthesis
Cell Biology and Genetics	Analytical Chemistry 1	Analytical Chemistry 3
Chemistry 2	Organic Chemistry 2	Pharmacology 2
Statistics and Mathematics for Science	Inorganic Chemistry 1	Elective x 3
Human Anatomy and Physiology	Medicinal Chemistry	
Elective x 1	Analytical Chemistry 2	

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# Bachelor of Forensic Science

**2019 Selection rank\*:** 85.35  
**Duration:** 3 years (full-time)  
6 years (part-time)  
**UAC code:** 607020  
**UTS course code:** C10387

**Professional recognition:**  
Graduates are eligible for membership of the Royal Australian Chemical Institute and the Australian and New Zealand Forensic Science Society

**Recommended year 12 subjects:**  
Chemistry, Physics and HSC Mathematics Extension 1

## COURSE DESCRIPTION

Use science to help fight crime with the Bachelor of Forensic Science, Australia's leading forensic science degree. This is a unique industry-connected degree: course content is taught – and shaped – by world-renowned academics and industry professionals. We've also got strong links with state and federal law enforcement agencies, national and international forensic institutions, and a range of government laboratories. You'll start with a solid foundation in the principles and application of forensic science, followed by a major in one of four specialties: Biology, Chemistry, Crime Scene Investigation and Digital Forensics. You'll work your way through a range of forensic problems, including processing complex cases, and you'll have access to some of the best forensics facilities around, including the Crime Scene Simulation Lab.

## CAREER OPTIONS

Depending on your chosen major, possible jobs include: Crime scene officer, DNA profiler, forensic laboratory scientist, biomedical scientist, expert witness, forensic trace evidence specialist, analytical chemist, science teacher, lecturer or academic, clinical toxicologist, forensic toxicologist, regulatory toxicologist, forensic entomologist, team leader in investigations, forensic chemist, forensic anthropologist, research associate, analytical technician.

## WHERE UTS GRADS ARE WORKING

Federal and state police, DNA testing labs, medical firms, secondary schools, universities, government and private forensic or drug detection laboratories, customs, quarantine services, environmental protection agencies, pharmaceutical, chemical and analytical industries, DNA testing laboratories, medical diagnostic laboratories, hospitals or corporate multinationals providing forensic, medical or research services, digital forensic laboratories.



# Typical course structure

YEAR 1	YEAR 2	YEAR 3
<b>Chemistry Major</b>		
Chemistry 1 Principles of Forensic Science Principles of Scientific Practice Mathematical Modelling for Science Chemistry 2 Cell Biology and Genetics Forensic Statistics Forensic Imaging	Crime Scene Investigation Organic Chemistry 1 Criminalistics Analytical Chemistry 1 Analytical Chemistry 2 Organic Chemistry 2 Chemical Criminalistics <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- Fire and Explosion Investigation</li> <li>- Inorganic Chemistry 1</li> <li>- Medicinal Chemistry</li> <li>- Introduction to Materials</li> <li>- Human Anatomy and Physiology</li> </ul>	Forensic Intelligence Complex Cases Forensic Research Project Electives x 4 <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- Chemistry and Pharmacology of Recreational Drugs</li> <li>- Fire and Explosion Investigation</li> <li>- Inorganic Chemistry 1</li> <li>- Medicinal Chemistry</li> <li>- Introduction to Materials</li> <li>- Human Anatomy and Physiology</li> </ul>
<b>Biology Major</b>		
Chemistry 1 Principles of Forensic Science Mathematical Modelling for Science Principles of Scientific Practice Chemistry 2 Cell Biology and Genetics Forensic Statistics Forensic Imaging	Crime Scene Investigation General Microbiology Criminalistics Metabolic Biochemistry Molecular Biology 1 DNA Profiling <b>Select two of the following:</b> <ul style="list-style-type: none"> <li>- Investigation of Human Remains</li> <li>- Bioinformatics</li> <li>- Bionanotechnology</li> <li>- Analytical Biochemistry</li> <li>- Epidemiology and Public Health Microbiology</li> <li>- Human Anatomy and Physiology</li> </ul>	Forensic Intelligence Complex Cases Forensic Research Project Next Generation Sequencing Electives x 4
<b>Crime Scene Investigation Major</b>		
Chemistry 1 Principles of Forensic Science Mathematical Modelling for Science Principles of Scientific Practice Chemistry 2 Cell Biology and Genetics Forensic Statistics Forensic Imaging	Crime Scene Investigation Foundations of Physics Criminalistics Organic Chemistry 1 Homicide Investigation Major Scene Investigation Investigation of Human Remains <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- Chemical Criminalistics</li> <li>- Fire and Explosion Investigation</li> </ul>	Forensic Intelligence Complex Cases Forensic Research Project Advanced Imaging and Specialist Recovery Elective x 4
<b>Digital Forensics Major</b>		
Web Systems Principles of Forensic Science Programming Fundamentals Mathematical Modelling for Science Security Fundamentals Network Fundamentals Forensic Statistics Forensic Imaging	Crime Scene Investigation Cyber Security Criminalistics Digital Trace and Identity Digital Forensics Digital and Cyber Crime Mobile Networking <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>- Network Servers</li> <li>- Cloud Computing Infrastructure</li> </ul>	Forensic Intelligence Complex Cases Forensic Research Project Web Monitoring and Investigations Elective x 4

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Biotechnology

## At the forefront of innovation

Whether you know it or not, innovations in biotechnology shape your everyday life. From the development of new vaccines and medicines to improved food crops and novel biofuels, biotechnology is a critical tool for protecting, enhancing and remediating our planet—and improving the lives of the people who populate it. Not convinced? Without biotechnology, Netflix might not even exist (the company employs computational biotechnologists to manage their big data), so just ponder that for a minute!

## Build niche expertise

Luckily, UTS is a leading provider of biotechnology degrees, so whether you're passionate about cancer research or enhancing your favourite streaming service, we've got a course for you. There are four majors to choose from: medical biotechnology, environmental biotechnology, computational biotechnology and biosensor technology. So you'll be able to focus your studies exactly where your interests lie. What's more, experience shows us that successful biotechnology graduates have skills beyond the lab. You'll also graduate with an understanding of commercialisation, ethics and business law.

## Gain traction with industry

We've got strong connections with industry – and as a UTS student, you will too. We work closely with our industry partners, using their expertise and experience to shape all our course content, so you can be confident that everything you study will be relevant to your future career. What's more, graduates of the Bachelor of Science (Biotechnology) can apply for professional recognition with AusBiotech – Australia's Biotechnology Association, connecting you to a diverse community of life science experts.

## Connor Mcleod

Bachelor of Biotechnology, Bachelor of Business



**"I became interested in biotechnology when I learnt that my biology teacher's son was diagnosed with muscular dystrophy, and what that meant. His son was blind due to the absence of activity in the optic nerve.**

This got me interested in biotechnology and biomedical engineering, and sparked my passion to create implants that augment sensory function in order to help patients like my teacher's son in the future.

I'm currently working for CSIRO on a cadetship but I would like to continue with the company and gain experience and participate in side projects along the way.

The real research going on at UTS which is inspiring to be around. I will eventually start my own venture producing implants that augment sensory function."

## Nicholas James

Bachelor Advanced Science (Environmental Biotechnology), Bachelor Creative Intelligence and Innovation



**"I chose UTS because I love the research and hands-on opportunities I get through my degree, and I love the focus on innovation, entrepreneurship and community that UTS has.**

A typical day for me involves all sorts of flexible projects from lab work, to group projects and challenges, to short lectures and collaborating with passionate friends about future jobs and world-improving ideas. Getting involved in internships, field trips, research opportunities and unique classes has meant studying at science at UTS never has two days the same.

My favourite part of my degree is meeting people in industry and research as it allows me to see another perspective of science beyond the bench, discovering exactly where science makes an impact and how research and study gives back to our community.

After graduating, I would love to apply my skills and knowledge in science back to the coastal communities of NSW and Australia."

# Bachelor of Advanced Science (Environmental Biotechnology)

<b>2019 Selection rank*:</b>	91.60
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607059
<b>UTS course code:</b>	C10347
<b>Assumed knowledge:</b>	Year 12 Mathematics, two units of Science and any two units of English

## COURSE DESCRIPTION

Humans are in a constant battle with microbes. This course will teach you to harness their potential to solve a wide range of environmental and medical challenges. Emerge as a new breed of scientist with skills in bioinformatics, microbial ecology and the fundamental sciences; become a driving force behind the next generation of sustainable, commercial products like biofuels; and learn critical techniques like bioremediation and mine waste management that use microbes as a tool to solve pressing problems. You'll gain extensive skills in the practical aspects of modern biotechnology, including genetics, biomass production and bioprocessing of compounds. You'll also conduct an advanced research project in our world-leading algal biofactory program where you'll explore the application potential of photosynthetic microalgae. The upshot? You'll graduate ready to take your place in the science workforce of the future, delivering biotechnology solutions that make a lasting difference to the environment.

## CAREER OPTIONS

Wildlife officer, environmental restoration planners, environmental sustainability manager, environmental scientist, synthetic biologist, process scientist, research and development specialist, downstream/upstream process specialist, development scientist, data scientist and various scientific roles in industrial energy and biofuels, agriculture, environmental management or phyto-remediation. You could also pursue a research career via the honours program and a postgraduate research degree.

## WHERE UTS GRADS ARE WORKING

Environmental consulting companies, biotechnology companies, NSW Department of Primary Industries, NSW Office of Environment and Heritage, federal government departments, aquaculture companies, pharmaceutical companies, health care companies, universities.

For more career options, visit [science.uts.edu.au/future](http://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	Metabolic Biochemistry	Biotechnology
Mathematical Modelling for Science	General Microbiology	Medical Biotechnology
Cell Biology and Genetics	Advanced Research Project 1	Advanced Research Project 3
Physical Aspects of Nature	Bioinformatics	Environmental Biotechnology
Chemistry 2 (Advanced)	Molecular Biology 1	Bioreactors and Bioprocessing
Biocomplexity	Advanced Research Project 2	Advanced Research Project 4
Integrating Business Perspectives	Elective x 2	Elective x 2
Research Methods		

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Bachelor of Biotechnology

<b>2019 Selection rank*:</b>	85.45
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607045
<b>UTS course code:</b>	C10172
<b>Professional recognition:</b>	UTS Science is awaiting recognition from AusBiotech for this course

**Recommended year 12 subjects:**  
Maths Extension 1, Chemistry, Maths

## COURSE DESCRIPTION

Biotechnology? It's the science of the future. Study the biological processes of living organisms and learn to manipulate these processes in order to develop new medicines, food and organic substances. You'll choose from four areas of major study – Medical Biotechnology, Environmental Biotechnology, Computational Biotechnology and Biosensor Technology – and build specialist expertise in a niche area of the field. You'll also gain a solid grounding in ethics, law and business processes as they relate to this emerging field of science – so you'll be ready for a range of experiences both in and beyond the lab. The good news? Biotech graduates have excellent employment rates. The emerging nature of the field, coupled with the UTS signature of producing graduates whose skills respond to industry need, will make you sought after by a variety of employers.

## CAREER OPTIONS

### Medical Biotechnology

Medical biotechnologists primarily work in laboratory settings to develop new vaccines and medicines for pharmaceutical and biotechnology companies, pathology and biomedical industries, and universities and research institutes.

### Environmental Biotechnology

Environmental biotechnologists develop and use processes to develop new products and remediate contaminated sites. They may use plants to filter pollutants in soil, water, or air; convert algae or plants to biofuels; or develop more sustainable processes to prevent pollution. For example, microbes and bacteria are used in waste management to help breakdown the pollutants.

### Computational Biotechnology

Bioinformatics or computational biotechnologists are in demand with their combined expertise in biological sciences, statistics, mathematical modelling and database design. Employment prospects are driven by pharmaceutical and biotechnology industries looking to take advantage of genomics data to usher in a new era of drug discovery. There are other companies that have similar computational needs, such as Google, Facebook and Netflix, who are hiring computational biotechnologists to manage their own versions of big data.

### Biosensor Technology

A biosensor is an analytical device that converts a biological response into an electrical signal. Biosensor technologists create user-friendly diagnostic and drug testing technologies for applications in disease diagnosis, illicit drug testing or water and food testing to improve our quality of life. An example could include targeted drug delivery via nanotechnology methods where the medicine is delivered directly to the cancerous cells.



## Typical course structure

YEAR 1	YEAR 2	YEAR 3
<b>Medical Biotechnology Major</b>		
Principles of Scientific Practice Chemistry 1 Cell Biology and Genetics Physical Aspects of Nature Molecular Biology 1 Integrating Business Perspectives Immunology 1 Human Anatomy and Physiology	Immunology 2 General Microbiology Biotechnology Pharmacology 1 Business and Organisational Strategy Intellectual Property Commercialisation Medical Devices and Diagnostics Pharmacology 2	Medical Biotechnology Bioreactors and Bioprocessing Business Strategy and Scenario Planning Biobusiness Electives x 4
<b>Environmental Biotechnology Major</b>		
Principles of Scientific Practice Chemistry 1 Cell Biology and Genetics The Biosphere Molecular Biology 1 Integrating Business Perspectives Biocomplexity Business and Organisational Strategy	Water Supply and Wastewater Engineering General Microbiology Biotechnology Statistical Design and Analysis Environmental Remediation Intellectual Property Commercialisation Environmental Chemistry Principles of Environmental Engineering	Environmental Biotechnology Bioreactors and Bioprocessing Business Strategy and Scenario Planning Biobusiness Electives x 4
<b>Computational Biotechnology Major</b>		
Principles of Scientific Practice Chemistry 1 Cell Biology and Genetics Mathematical Modelling 1 Molecular Biology 1 Integrating Business Perspectives Programming Fundamentals Mathematical Modelling 2	Programming for Data Analysis General Microbiology Biotechnology Introduction to Data Analytics Introduction to Information Systems Intellectual Property Commercialisation Business and Organisational Strategy Advanced Data Analytics	Bioinformatics Bioreactors and Bioprocessing Business Strategy and Scenario Planning Biobusiness Electives x 4
<b>Biosensor Technology Major</b>		
Principles of Scientific Practice Chemistry 1 Cell Biology and Genetics Mathematical Modelling 1 Chemistry 2 Integrating Business Perspectives Human Anatomy and Physiology Physical Modelling	Business and Organisational Strategy Biotechnology Medical Imaging Molecular Nanotechnology Bionanotechnology Intellectual Property Commercialisation Immunology 1 Medical Devices and Diagnostics	Biosensors Nanophotonics Business Strategy and Scenario Planning Biobusiness Electives x 4

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Bachelor of Science (Biotechnology)

<b>2019 Selection rank*:</b>	76.20
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607015
<b>UTS course code:</b>	C10242
<b>Professional recognition:</b>	AusBiotech
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Chemistry, Maths

## COURSE DESCRIPTION

With this future-focused Biotechnology major, you'll gain a solid grounding in science, skills in biotechnology and an understanding of business, ethics, hazard management and intellectual property issues as they relate to this field of academic enquiry. Study the biological processes of living organisms and learn to manipulate these processes in order to develop new medicines, food and organic substances, building skills that can be transferred to any research laboratory. Beyond the lab, get your head around the commercialisation process – it's key to the biotech discipline – and engage with industry networking opportunities, workshops, pitching sessions and internships to start building the relationships that could shape your career.

## CAREER OPTIONS

Biotechnologist, microbiologist, food and wine producer, science and technology technical officer, cancer researcher, secondary school teacher, academic or lecturer, molecular scientist, microbiologist, geneticist, biologist or food technologist.

## WHERE UTS GRADS ARE WORKING

CSIRO, AusBiotech, AstraZeneca, Children's Medical Research Institute, Kelly Scientific Resources, Australian Institute for Bioengineering and Nanotechnology, AgResearch, Accenture Australia; and various positions in tropical crops and biocommodities, bioengineering and nanotechnology, and food science technology companies.

For more career options, visit [science.uts.edu.au/future](https://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	General Microbiology	Molecular Biology 2
Cell Biology and Genetics	Metabolic Biochemistry	Biobusiness
Statistical Design and Analysis	Biotechnology	Immunology 2
Principles of Scientific Practice	Molecular Biology 1	Bioreactors and Bioprocessing
Chemistry 2	Electives x 2	Electives x 2
Biocomplexity	<b>Select two of the following:</b>	<b>Select one of the following:</b>
Human Anatomy and Physiology	- Analytical Biochemistry	- Transfusion Science
Physical Aspects of Nature	- Epidemiology and Public Health Microbiology	- Biochemistry, Genes and Disease
	- Immunology 1	- Parasitology
	- Haematology 1	- Environmental Biotechnology

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Medical and health sciences

## Diagnose, treat and prevent

Medical and health science underpins the study of medicine, so get ready to learn about human anatomy from the molecular level to whole-organ and whole-body systems. These degrees can prepare you for the journey towards a patient-facing career, or for a future at the forefront of medical and health research.

## Core skills – and more

All our degrees in medical and health sciences include the study of fundamental concepts in chemistry, biology and human anatomy, among others. This means you'll gain a comprehensive foundation in the scientific concepts that underpin all health and medical careers. But this isn't science

for beginners, either – once you've got the basics covered, you'll go on to build specialist expertise that relates to your chosen area of study, from Biomedical Science and Traditional Chinese Medicine to Infection and Immunity, Pre-Medicine and Pharmaceutical Sciences. Want to broaden your skill set? Combine your degree with business, international studies, creative intelligence and innovation, law or engineering, and see your career opportunities soar.

## Careers that can take you anywhere

The fields of medical and health sciences are constantly expanding, thanks in part to the development of new techniques and technologies to detect, diagnose and treat disease and manage human health.

Today, a career title in this field doesn't necessarily begin with the word 'doctor' (although that's a great outcome too!). Instead, a medical or health sciences qualification can be applied within the hospital or far beyond.

Become a vaccine researcher and prevent the global spread of disease, work as a nutritionist helping everyday people optimise their health, or scrub in as an operating theatre technician and see life-changing surgery as it happens – there are more careers than you can count. Looking for a more hands-on clinical route? You can also use your degree as a foundation for a career in medicine, pharmacy or psychology. Some of our degrees offer direct pathways into these areas – you'll find this info on the individual course pages.

## Rebecca Keppel

Associate Lecturer, UTS School of Life Sciences



**Rebecca Keppel and her team have reimaged the way students learn about haematology. By designing a series of games – such as 'diagnose a celebrity' and 'bone marrow bingo', they've created authentic assessments that help students learn the fundamental skills they need.**

Rebecca splits her time between teaching at UTS and working at Liverpool Hospital. Working both in industry while teaching at UTS is not uncommon, and gives students an insight into what their lecturers are doing in the lab outside of university, so they can build the skills required in the workplace.

## Denise Go

Bachelor of Medical Science, Master of Orthoptics  
Orthoptist, Prince of Wales Hospital



**"As an allied health professional, I specialise in ocular disorders and eye movements. My role involves performing diagnostic test depending on the patient's condition, signs and symptoms.**

Studying medical science at UTS has opened many doors of opportunity for me. UTS provided me with various resources, such as information nights and career consultations which helped narrow my career choices. I was also greatly supported by the science faculty who gave encouragements and advice on pursuing a postgraduate degree.

UTS provides opportunities for building your networks and offers programs to improve your leadership and communication skills. There's an endless amount of resources available for those who are willing to search for it."

# Bachelor of Advanced Science (Infection and Immunity)

<b>2019 Selection rank*:</b>	94.10
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607060
<b>UTS course code:</b>	C10347
<b>Assumed knowledge:</b>	Year 12 Mathematics, two units of Science and any two units of English

## COURSE DESCRIPTION

As the world teeters on the precipice of antibiotic resistance, we're in a race against time to develop viable alternatives. Join the global effort to address this urgent health problem with a degree that's all about stopping microbial infections in their tracks. With the Bachelor of Advanced Science in Infection and Immunity, you'll learn how micro-organisms cause infections, how the host prevents and responds, and how to target both infection and prevention mechanisms to develop new clinical applications. You'll combine theory with extensive lab practice, and bring our 'learn by doing' mantra to life. What's more, you'll gain advanced experimental, analytical and computational skills in areas such as drug discovery, development of vaccines, drug synthesis, human immunology and antibiotic resistance.

## CAREER OPTIONS

This course is a gateway to multiple career options in biotechnology, medicine, pharmaceuticals, vaccine development, patent law and public health. Jobs include a wide range of interdisciplinary data-intensive scientific and technical support positions spanning government, business, industry and education organisations.

You can also pursue a research career via the honours program and a postgraduate research degree.

## WHERE UTS GRADS ARE WORKING

NSW Health, Therapeutic Goods Authority, clinical laboratories, medical device companies, government departments, universities, hospitals.

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	General Microbiology	Virology
Physical Aspects of Nature	Pharmacology 1	Physiological Systems
Cell Biology and Genetics	Infection and Immunity Research (12cp)	Elective x 2
Quantitative Skills for Science	Drug Discovery	Advanced Research Project
Chemistry 2 (Advanced)	Immunology 1	<b>Select one of the following:</b>
Molecular Biology 1	Elective x 2	<ul style="list-style-type: none"> <li>- Bacterial Pathogenesis</li> <li>- Parasitology</li> </ul>
Human Anatomy and Physiology		<b>Select one of the following:</b>
Research Methods		<ul style="list-style-type: none"> <li>- Proteomics</li> <li>- Pharmacology 2</li> </ul>

# Bachelor of Advanced Science (Pre-Medicine)

<b>2019 Selection rank*:</b>	95.15
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607063
<b>UTS course code:</b>	C10347
<b>Assumed knowledge:</b>	Year 12 Mathematics, two units of Science and any two units of English

## COURSE DESCRIPTION

Get ready for postgraduate study in medicine or dentistry with a coursework degree that's all about the human body. Engage with extensive study in human anatomy that includes opportunities to work with donated cadavers in our Surgical and Anatomical Sciences Facility, and build expertise in physiology, pathophysiology and pharmacology. You'll also get an introduction to medical practice in the final year of your degree. Want more? We keep our class sizes deliberately small so you'll enjoy a more personalised teaching experience, as well as the chance to work extensively with other pre-med students.

## CAREER OPTIONS

Medical lab manager, microbiologist, research associate, cancer researcher, diagnostic technician, biologist, geneticist, pathologist, medical and science technician, physiotherapist, health policy writer, health and medical writer, sales and technical support of medical devices, and positions within the pharmaceutical and therapeutic goods industries.

You'll also be ready to apply for postgraduate study in medicine or dentistry or pursue a research career via the honours program and a postgraduate research degree.

## WHERE UTS GRADS ARE WORKING

NSW Health, NSW Health Pathology, MQ Health Cardiology, Medtronic, Stryker, Therapeutic Goods Authority, pathology laboratories such as Douglas Hanly Moir Pathology, clinical laboratories, medical device companies, pharmaceutical industry, government departments, universities, hospitals.

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	Physiological Systems	Pharmacology 1
Cell Biology and Genetics	Metabolic Biochemistry	Neuroscience
General Microbiology	Histology	Clinical Features of Disease
Quantitative Skills for Science	Human Pathophysiology	Human Anatomy 3
Chemistry 2 (Advanced)	Human Anatomy 2	Pharmacology 2
Physical Aspects of Nature	Immunology 1	Medical and Applied Physiology
Human Anatomy and Physiology	Elective x 2	Elective x 2
Research Methods		

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Bachelor of Advanced Science (Pharmaceutical Sciences)

<b>2019 Selection rank*:</b>	92.55
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607061
<b>UTS course code:</b>	C10347
<b>Assumed knowledge:</b>	Year 12 Mathematics, two units of Science and any two units of English

## COURSE DESCRIPTION

This course provides you with the knowledge and practical skills critical to the discovery of new drugs and therapies, leading to exciting careers in pharmacy, pharmaceutical sciences or any health related careers, including placements with large multinational pharmaceutical and biotechnology companies.

You will learn the chemical, biological and pharmacological principles relevant to drug discovery, development and application. You can also undertake further postgraduate study in pharmacy or medicine, or develop research skills and expertise taught in the course to pursue a career as a research scientist. This major also has an entry pathway<sup>^</sup> to the UTS Master of Pharmacy.

## CAREER OPTIONS

Graduates could find employment in the pharmaceutical sciences field in research, drugs, cosmetics, biotechnology, and health related disciplines. Graduates could consider options such as postgraduate pharmacy, medicine or other health related disciplines. It also has an entry pathway<sup>^</sup> to the UTS Master of Pharmacy.

## WHERE UTS GRADS ARE WORKING

Pharmaceutical companies, biotechnology start-ups, hospitals, medical research facilities, universities, and government regulatory authorities.

<sup>^</sup>In order to progress to the UTS Master of Pharmacy, you must successfully complete the requirements for the UTS Bachelor of Advanced Science, major in Pharmaceutical Sciences, with at least a credit average, as well as successfully sit a selection interview at the end of the third semester in the Bachelor's degree. The interview will usually take around 20 minutes during which an academic panel will assess your communication skills, interpersonal skills, interest in and commitment to pharmacy a career. Successful candidates will be guaranteed admission into the UTS Master of Pharmacy.

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	Metabolic Biochemistry	Clinical Features of Disease
Cell Biology and Genetics	Organic Chemistry 1	Human Anatomy 3
General Microbiology	Physiological Systems	Pharmacology 1
Quantitative Skills for Science	Human Pathophysiology	Drug Discovery
Chemistry 2 (Advanced)	Human Anatomy 2	Medical and Applied Physiology
Physical Aspects of Nature	Medicinal Chemistry	Pharmacology 2
Human Anatomy and Physiology	Electives x 2	Electives x 2
Research Methods		

# Bachelor of Science (Biomedical Science)

<b>2019 Selection rank*:</b>	76.20
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607015
<b>UTS course code:</b>	C10242
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Chemistry, Maths, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

Get to grips with the causes of disease at the cellular level with a degree in Biomedical Science. You'll build a solid foundation in both biological and medical sciences, learning to diagnose, prevent and treat disease as it occurs in the human body. In addition to theoretical knowledge, you'll gain extensive laboratory experience in every subject of your course, and you'll build sophisticated experimentation skills in established and emerging areas, including the rapidly expanding field of molecular-based diagnostics. Work alongside academics and industry professionals with expertise across the health system, and take advantage of industry opportunities that'll place your skills in a real-world context.

## CAREER OPTIONS

Hospital scientist, scientific officer, technical officer, medical laboratory manager, research technician, research associate, cancer researcher, infectious disease researcher, diagnostic technician, biologist, research and development scientist, sales representative, product specialist, science communicator, policy advisor.

This degree also provides an excellent groundwork for postgraduate study in genetics, medicine and other health sciences.

## WHERE UTS GRADS ARE WORKING

NSW Health Pathology, Hospitals, Private pathology laboratories, Australian Red Cross Blood service, various universities and biomedical and medical research institutions, pharmaceutical companies, Children's Medical Research Institute, Centre for Cancer Biology, Westmead Institute for Medical Research, Accenture Australia, Australian Genome Research Facility (AGRF).

For more career options, visit [science.uts.edu.au/future](http://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	General Microbiology	Elective x4
Cell Biology and Genetics	Metabolic Biochemistry	Clinical Bacteriology
Statistical Design and Analysis	Histology	Haematological Diagnostics
Principles of Scientific Practice	Haematology 1	Immunology and Human Health
Chemistry 2	Molecular Biology 1	Biochemical Basis of Disease
Biocomplexity	Analytical Biochemistry	
Human Anatomy and Physiology	Epidemiology and Public Health Microbiology	
Physical Aspects of Nature	Immunology 1	

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Bachelor of Biomedical Science

<b>2019 Selection rank*:</b>	80.15
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607040
<b>UTS course code:</b>	C10115
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Chemistry, Maths, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

You'll build a solid foundation in both biological and medical sciences, learning to diagnose, prevent and treat disease as it occurs in the human body. By combining extensive laboratory experience with critical thinking, you'll build sophisticated experimentation skills in established and emerging areas, including the rapidly expanding field of molecular-based diagnostics.

In this degree, you'll spend your third and final year of study focusing on one of three Biomedical Science Sub Majors: Cellular Pathology, Microbiology and Host Responses or Biochemistry and Molecular Diagnostics. You'll work alongside academics and industry professionals with expertise across the health system, and take advantage of industry opportunities, like internships, that'll place your skills in a real-world context.

## CAREER OPTIONS

Depending on your chosen Sub Major, jobs include: Hospital scientist, scientific officer, technical officer, medical laboratory manager, biochemist, microbiologist, research technician, transplant scientist, research associate, cancer researcher, gene therapist, infectious disease researcher, diagnostic technician, biologist, research and development scientist, sales representative, product specialist, science communicator, policy advisor.

This degree also provides an excellent groundwork for postgraduate study in genetics, medicine and other health sciences.

## WHERE UTS GRADS ARE WORKING

NSW Health Pathology, Hospitals, Private pathology laboratories, Australian Red Cross Blood service, various universities and biomedical and medical research institutions, pharmaceutical companies, Children's Medical Research Institute, Centre for Cancer Biology, Westmead Institute for Medical Research, Accenture Australia, Australian Genome Research Facility (AGRF).

For more career options, visit [science.uts.edu.au/future](https://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	General Microbiology	Elective x 4
Cell Biology and Genetics	Metabolic Biochemistry	Clinical Bacteriology
Statistical Design and Analysis	Histology	Parasitology
Principles of Scientific Practice	Haematology 1	Immunology and Human Health
Chemistry 2	Molecular Biology 1	Application of Molecular Biology
Biocomplexity	Analytical Biochemistry	
Human Anatomy and Physiology	Epidemiology and Public Health Microbiology	
Physical Aspects of Nature	Immunology 1	

# Bachelor of Science (Medical Science)

<b>2019 Selection rank*:</b>	76.20
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607015
<b>UTS course code:</b>	C10242
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Chemistry, Maths, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

Use your scientific instincts to deliver improvements in health care by learning about the structure, function and disease processes of the human body. With a Medical Science degree, you'll take a health-specific perspective on the human body at both the cellular and whole organ level. You'll study unique subjects, like medical devices and diagnostics that will prepare you for a career in the growing medical devices industry. You'll also gain extensive theoretical and hands-on laboratory experience with core subjects like microbiology and molecular biology. This is a technology-focused degree, with opportunities to study in tech-driven facilities like our human robotic anatomy laboratory and the UTS Super Lab.

## CAREER OPTIONS

Medical scientist, medical imaging technician, human factors researcher, anaesthetic technician, cardiac technician, operating theatre technician, geneticist, medical journalist or writer, health professional, nutritionist, and medical researcher. This degree also prepares you for postgraduate study in medicine, dentistry, pharmacy, biomedical engineering, nutrition and dietetics, complementary medicine, public health and health administration, or for careers in the health, medicine or pharmaceutical sectors.

## WHERE UTS GRADS ARE WORKING

Australian Red Cross Blood Service, Westmead Children Hospital, Children's Medical Research Institute, hospitals, Australian Society for Medical Research (ASMR), Australian Defence Force, federal and state government health departments, Medicare Australia, pathology laboratories, Pfizer, Unilever and WorkSafe Victoria.

For more career options, visit [science.uts.edu.au/future](https://science.uts.edu.au/future)

## KEEN TO FINISH YOUR DEGREE EARLIER?

You can complete your medical science degree in two years by adding subjects over the summer session.

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	Metabolic Biochemistry	Electives x 4
Cell Biology and Genetics	General Microbiology	Pharmacology 2
Statistical Design and Analysis	Physiological Systems	Medical Devices and Diagnostics
Principles of Scientific Practice	Pharmacology 1	Medical and Applied Physiology
Chemistry 2	Molecular Biology 1	Neuroscience
Biocomplexity	Human Pathophysiology	
Human Anatomy and Physiology	<b>Select two of the following:</b>	
Physical Aspects of Nature	<ul style="list-style-type: none"> <li>- Epidemiology and Public Health Microbiology</li> <li>- Immunology 1</li> <li>- Haematology 1</li> <li>- Histology</li> <li>- Human Genetics and Precision Medicine</li> <li>- Medical Imaging</li> </ul>	

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Bachelor of Medical Science

<b>2019 Selection rank*:</b>	87.05
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607050
<b>UTS course code:</b>	C10184
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Chemistry, Maths, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

You'll gain extensive theoretical and hands-on laboratory experience with core subjects like chemistry and microbiology. In second and third years, you'll gain industry relevant experience with unique subjects like evidence based medical science and case studies in medical science. You'll learn how to analyse and interpret data to guide decisions and practice, while exploring the ethical and legal issues of large scale medical studies in clinical practices. You'll apply your analytical skills to real case studies to development treatment plans, reports and analysis. Understanding real cases means you'll be well prepared for making diagnoses and personalising treatment plans in rare and common diseases. Keen to boost your employability even more? Use your electives in your final year to complete an internship.

## CAREER OPTIONS

Genetic counsellor, pathologist, medical scientist, medical imaging technician, human factors researcher, anaesthetic technician, cardiac technician, operating theatre technician, geneticist, medical journalist or writer, health professional, nutritionist, and medical researcher.

This degree also prepares you for postgraduate study in medicine, dentistry, pharmacy, biomedical engineering, nutrition and dietetics, complementary medicine, public health and health administration, or for careers in the health, medicine or pharmaceutical sectors.

## WHERE UTS GRADS ARE WORKING

Australian Red Cross Blood Service, Westmead Children Hospital, Children's Medical Research Institute, hospitals, universities, the Australian Society for Medical Research (ASMR), Australian Defence Force, federal and state government health departments, Medicare Australia, pathology laboratories, Pfizer, Unilever.

For more career options, visit [science.uts.edu.au/future](https://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	Metabolic Biochemistry	Electives x 4
Cell Biology and Genetics	General Microbiology	Pharmacology 2
Statistical Design and Analysis	Physiological Systems	Medical Devices and Diagnostics
Principles of Scientific Practice	Pharmacology 1	Case Studies in Medical Science
Chemistry 2	Molecular Biology 1	Neuroscience
Biocomplexity	Human Pathophysiology	
Human Anatomy and Physiology	Evidence Based Medical Science	
Physical Aspects of Nature	Human Genetics and Precision Medicine	

# Bachelor of Health Science in Traditional Chinese Medicine

<b>2019 Selection rank*:</b>	90.10
<b>Duration:</b>	4 years (full-time) 8 years (part-time)
<b>UAC code:</b>	607055
<b>UTS course code:</b>	C10186
<b>Professional recognition:</b>	Chinese Medicine Board of Australia
<b>Recommended year 12 subjects:</b>	Biology, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

Combine your passion for traditional sciences and your interest in complementary health care systems with the Bachelor of Health Science in Traditional Chinese Medicine. You'll study the pharmacology of Chinese herbal medicine, diagnostics, massage and acupuncture, as well as relevant areas of biomedicine and bioscience. But don't just hit the books – this course has a strong practical component that'll see you complete more than 1000 hours of clinical experience over the course of our degree, including in our on-campus Chinese medicine clinic. You'll emerge as a highly adaptable Chinese medicine practitioner, with a thorough grounding in health care theory, ready to apply for registration with the Australian Health Practitioner Registration Agency's Chinese Medicine Board of Australia. Want more? Pursue overseas clinical internships in China and South Korea, or combine your degree with the Bachelor of Arts in International Studies to spend a year in China as part of your studies.

## CAREER OPTIONS

Private practitioner in acupuncture or Chinese herbal medicine, clinical therapist, nutritional and health consultants, academic, researcher, and Chinese herbal medicine dispenser.

## WHERE UTS GRADS ARE WORKING

Self-employed, Chinese medicine clinic, medical centres, hospitals including overseas hospitals in countries such as China, Korea and Taiwan, professional sports teams, multidisciplinary clinics, IVF centres, and tertiary institutions.

For more career options, visit [science.uts.edu.au/future](http://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3	YEAR 4
Chinese Medicine Foundations 1	Chinese Diagnostic System 1	Clinical Features of Disease	Evaluating TCM: Theory, Practice and Research 1
Point Location and Acupuncture Anatomy	Clinic Level 3 and Acupuncture Techniques 2	Clinic Level 5 and Acupuncture Microsystems	Disease States for Traditional Chinese Medicine 2
Clinical Theory and Clinic Level 1	Pharmacology of Chinese Herbal Medicine	Chinese Herbal Formula 2	Clinical Practice 1 (TCM)
Communication for the Complementary Therapist	Physiological Systems	Neuroscience	Professional Issues in Traditional Chinese Medicine
Introduction to Chinese Herbal Medicine	Chinese Diagnostic System 2	Medical Classics and the History of Chinese Medicine	Evaluating TCM: Theory, Practice and Research 2
Chinese Medicine Foundations 2	Clinic Level 4 and Acupuncture Techniques 3	Clinical Practicum (Therapy and Diagnosis)	Clinical Practice 2 (TCM)
Clinic Level 2 and Acupuncture Techniques 1	Chinese Herbal Formula 1	Clinic Level 6	
Human Anatomy and Physiology	Human Pathophysiology	Disease States for Traditional Chinese Medicine 1	

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# Environmental sciences

## Protecting the one thing that matters

There's more to environmental sciences than understanding the way plants and animals interact with the natural world. In fact, there's even more to it than diagnosing the root causes of climate change and documents its impacts on our planet. The study of environmental sciences is all about understanding ecological systems and finding bespoke solutions that protect, remediate and enhance the world we live in – a great fit if you want to leave a legacy that matters.

## Learning where you least expect it

Theory is great, but with our environmental courses, learning goes beyond the classroom. Our projects are as hands-on as our placements, which means you'll get to work on projects that reflect what's happening in the wider world – think crude oil removal from ecosystems, wildlife conservation, trekking through landscapes ranging from semi-arid ecosystems to woodlands, forests and alpine regions of Australia; and understanding how corals will cope with a changing climate.

What's more, all our courses emphasise practice-based learning – depending on the specialisation you choose, you could find yourself visiting the UTS field station at Stroud; journeying to research sites at Heron Island, One Tree Island or the Great Barrier Reef; or taking your studies into the floating classroom on board the CSIRO's Marine National Facility.

## Research that (really) changes the world

Ready to be inspired? At UTS Science, our researchers have big plans for the future of our planet. Environmental science projects include creating new chemical processes for the production of seaweed-based bioplastics, using plants to remediate contaminated landscapes and exploring the carbon sequestration potential of seagrass, to name a few. And these projects aren't being conducted in isolation, either – we've built extensive partnerships with a wide range of government and industry partners, ensuring our projects contribute to global efforts to build a sustainable future.

**Nicole Dilernia**  
Bachelor of Marine Biology



**“The best part of the degree is the practical elements. There's plenty of classes in the UTS Super Lab, and basically every biology subject has a field trip or an overnight stay. It's great to meet other people who are passionate about the same things as you.**

All the lecturers and demonstrators are extremely passionate about what they're teaching you. There's plenty of opportunities to get hands-on practical experience, and to work with different technologies and computer software programs.

UTS Science has also provided pathways for me to join overseas internships, including a turtle conservation program in Papua New Guinea.”

**Caitlin Jeffries**  
Bachelor of Environmental Biology



**“I chose environmental biology because I absolutely love working outdoors and in nature. I love all the all the field trips that we can do as part of our studies.**

The lecturers at UTS are involved in some awesome research. Most of my lecturers have this infectious passion for their topics. They help you feel excited about the work that's being done in science right now.

There's always something new and innovative going on around campus. The energy is fantastic!”

# Bachelor of Environmental Biology

<b>2019 Selection rank*:</b>	72.40
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607003
<b>UTS course code:</b>	C10223
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Chemistry, Maths, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

If visiting the Snowy Mountains, the NSW Outback, Heron Island and the Great Barrier Reef sounds like a holiday rather than a degree, then you're obviously not a student of the Bachelor of Environmental Biology – yet! At its heart, this course is about the study of ecosystem protection and management – but you don't have to study it from behind a desk. In fact, you'll experience a dynamic combination of theory, lab and fieldwork opportunities, such as the aforementioned trips to some of Australia's most stunning environments. You'll gain a thorough understanding of the function of living organisms, both on land and in water, and learn to assess, detect and respond to detrimental impacts on their function and environment. Want more? Our course content is informed by direct consultation with major employers of environmental scientists, so you'll build an adaptable, relevant and multi-faceted skill set that responds to the realities of the profession.

## CAREER OPTIONS

Biologist, environmental research scientist, environmental consultant, life scientist, aquatic ecologist, coal geologist, geological oceanographer, botanists, plant ecologist, plant pathologist, plant physiologist, plant taxonomist, biological scientist, exploration geologist, hydrogeologist, ranger, hydrologist, pest and weed controllers, entomologist, ecologist, land economist, mapping scientist.

## WHERE UTS GRADS ARE WORKING

CSIRO, National Parks and Wildlife Service, NSW Roads and Maritime Service, Schlumberger Oilfield Australia, Sunwater, Sydney Water, environmental protection organisations, water and coastal resources organisations, universities, TAFEs, Australian government departments.

For more career options, visit [science.uts.edu.au/future](http://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	Geological Processes	GIS and Remote Sensing
The Biosphere	Experimental Design and Sampling	Wildlife Ecology
Statistical Design and Analysis	Ecology	Aquatic Ecology
Principles of Scientific Practice	Animal Behaviour and Physiology	Biodiversity Conservation
Biocomplexity	Plant Physiology and Ecophysiology	Stream and Lake Assessment
Physical Aspects of Nature	Electives x 3	Elective x 1
Cell Biology and Genetics		Environmental Protection and Management
Environmental Chemistry		<b>Select one of the following:</b>
		– Forest and Mountain Ecology
		– Semi-arid Ecology
		– Alpine and Lowland Ecology

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Bachelor of Marine Biology

<b>2019 Selection rank*:</b>	79.50
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607035
<b>UTS course code:</b>	C10228
<b>Professional recognition:</b>	Australian Marine Science Association

**Recommended year 12 subjects:**  
Maths Extension 1, Chemistry, Maths, 2 units of English,  
2 units of Science

## COURSE DESCRIPTION

Affinity with the ocean? This course is all about marine environments, how they work and how we can better manage them. You'll build a solid understanding of how plants, animals and micro-organisms function in marine ecosystems, and gain the ability to detect and assess human and climate change impacts on a range of marine environments. Beyond the classroom, you'll also take the plunge into a range of marine environments, including the Great Barrier Reef and NSW coast, where you'll engage with real data collection activities. Out of the water, we'll connect you with the people you need to know – we've got strong links with key industry and government partners, and we'll also set you up with a range of workshops and internships, as well as opportunities to contribute to overseas research and conservation projects.

## CAREER OPTIONS

Marine biologist, life scientist, coastal manager, marine educator, aquatic researcher, aquaculture microbiologist, climate change researcher, fisheries scientist or ecologist, marine mammal response scientist, scientific and commercial diver, molecular biologist, marine biotechnologist, secondary school teacher, oil rig researcher, ecologist, data analyst, biosecurity officer, sea farm manager, science writer/editor.

## WHERE UTS GRADS ARE WORKING

Sea world, Taronga Zoo, Sydney Aquarium, wildlife parks, research institutes, universities, Environmental Protection Authority New Zealand, local and city councils, Australian Marine Sciences Association, Sydney Water, Federal Department of Agriculture and Water Resources, NSW Office of Environment and Heritage, national parks, environmental protection authorities, and natural resources and planning consultancies.

For more career options, visit [science.uts.edu.au/future](https://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Chemistry 1	Geological Processes	GIS and Remote Sensing
The Biosphere	Experimental Design and Sampling	Fisheries Resources
Statistical Design and Analysis	Ecology	Aquatic Ecology
Principles of Scientific Practice	Animal Behaviour and Physiology	Coral Reef Ecosystems
Biocomplexity	Plant Physiology and Ecophysiology	Environmental Protection and Management
Physical Aspects of Nature	Marine Communities	Marine Productivity and Climate Change
Cell Biology and Genetics	Elective x 2	Elective x 2
Environmental Chemistry		

# Bachelor of Science (Environmental Sciences)

<b>2019 Selection rank*:</b>	73.75
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607011
<b>UTS course code:</b>	C10242
<b>Recommended year 12 subjects:</b>	Maths Extension 1, Chemistry, Maths, 2 units of English, 2 units of Science

## COURSE DESCRIPTION

Calling all environmentalists with a drive to make a difference! With the Bachelor of Environmental Sciences, you'll take your passion for the natural world and channel it into a wide-ranging degree. This course combines theoretical knowledge with extensive laboratory experience, plus a range of field excursions that'll take you out into the world. Tailor your subject choices to fit your passions – your options span everything from environmental protection and management to remote sensing, forest and mountain ecology, to marine science and fisheries management. You can also choose four electives from any UTS faculty, giving you the chance to deepen your specialisation, build a complementary skill set, or explore an entirely new discipline area that'll broaden your horizons.

## CAREER OPTIONS

Environmental scientist, environment education officer, secondary school teacher, conservation consultant, ecologist, ranger, marine park officer, fisheries manager, environment analyst, policy maker and botanist.

## WHERE UTS GRADS ARE WORKING

CSIRO, Local Councils, Goulburn-Murray Water, Lend Lease Corporation, Orica Ltd, WSP Parsons Brinckerhoff, NSW Roads and Maritime Service, Schlumberger Oilfield Australia, Sunwater, Sydney Water, NSW Department of Primary Industries.

For more career options, visit [science.uts.edu.au/future](http://science.uts.edu.au/future)

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
Principles of Scientific Practice	Ecology	Elective x 2
Chemistry 1	Experimental Design and Sampling	<b>Select three of the following:</b>
The Biosphere	Geological Processes	– Aquatic Ecology
Statistical Design and Analysis	Elective x 2	– Biodiversity Conservation
Cell Biology and Genetics	<b>Select three of the following:</b>	– Fisheries Resources
Physical Aspects of Nature	– Animal Behaviour and Physiology	– GIS and Remote Sensing
Biocomplexity	– Environmental Remediation	– Wildlife Ecology
Environmental Chemistry	– Marine Communities	<b>Select three of the following:</b>
	– Plant Physiology and Ecophysiology	– Environmental Protection and Management
	– Microbial Ecology	– Stream and Lake Assessment
		– Coral Reef Ecosystems
		– Marine Productivity and Climate Change
		– Semi-arid Ecology

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# Bachelor of Science (Flexible)

<b>2019 Selection rank*:</b>	75.60
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>UAC code:</b>	607001
<b>UTS course code:</b>	C10242

## Recommended year 12 subjects:

Mathematics; any two units of English; at least two units of Science relevant to the individual discipline chosen. Maths Ext 1 is recommended for those majoring in mathematics or statistics.

## COURSE DESCRIPTION

With so many specialist degrees out there, it can be hard to choose the one that's right for you. That's why we've created a flexible major – so you can explore multiple science disciplines in a single course. And when we say flexible, we mean it: you'll study core science and maths subjects in your first year, and you'll also select one of three streams of enquiry that'll help give your course some structure – choose from Life and Environmental Sciences, Physical Sciences and Mathematical Sciences. At the end of first year, you can turn your stream studies into a major, build a couple of sub-majors, or keep your options open by continuing to study a mix of subjects across lots of different areas of science. Want more? Combine your degree with courses in other UTS faculties, including Business, International Studies, Law, Engineering or Creative Intelligence and Innovation, and pair your scientific knowledge with another professional discipline. You'll open doors to new connections and career options, and graduate with versatile and highly transferable skills that you can apply in almost any industry.

## CAREER OPTIONS

Your career options will depend largely on the major, sub-major or subjects you choose and the combined degree you pursue (if any). Flexible science graduates can apply their skills to almost any industry from biotechnology; marine biology; environmental monitoring and management; mathematics; statistical modelling or chemistry. You could boost your degree with postgraduate qualifications in education and become a science or maths teacher.

## Typical course structure

YEAR 1	YEAR 2	YEAR 3
<b>Mathematical Science Stream</b>		
Introduction to Quantitative Management Introduction to Linear Dynamical Systems Introduction to Statistics Principles of Scientific Practice Regression Analysis Introduction to Mathematical Analysis and Modelling Probability and Random Variables Select one subject from Foundation subject choice B (refer to handbook)	Choose six subjects from Level 2 subject choices (Physical Sciences).  See: <a href="http://handbook.uts.edu.au/directory/cbk90606">handbook.uts.edu.au/directory/cbk90606</a>  Elective x 2	Choose six subjects from Level 3 subject choices (Physical Sciences).  See: <a href="http://handbook.uts.edu.au/directory/cbk90607">handbook.uts.edu.au/directory/cbk90607</a>  Electives x 2

YEAR 1	YEAR 2	YEAR 3
<b>Chemistry Stream</b>		
<p><b>Select one of the following:</b></p> <ul style="list-style-type: none"> <li>– Mathematical Modelling 1</li> <li>– Mathematical Modelling for Science</li> </ul> <p><b>Select one of the following:</b></p> <ul style="list-style-type: none"> <li>– Mathematical Modelling 2</li> <li>– Statistics and Mathematics for Science</li> <li>– Principles of Scientific Practice</li> </ul> <p>Chemistry 1</p> <p>Chemistry 2</p> <p>Foundations of Physics</p> <p>Physics in Action</p> <p><b>Select one of the following:</b></p> <ul style="list-style-type: none"> <li>– Cell Biology and Genetics</li> <li>– Environmental Chemistry</li> <li>– Human Anatomy and Physiology</li> <li>– Introduction to Materials</li> </ul>	<p>Choose six subjects from Level 2 subject choices (Physical Sciences).</p> <p>See: <a href="http://handbook.uts.edu.au/directory/cbk90606">handbook.uts.edu.au/directory/cbk90606</a></p> <p>Electives x 2</p>	<p>Choose six subjects from Level 3 subject choices (Physical Sciences).</p> <p>See: <a href="http://handbook.uts.edu.au/directory/cbk90607">handbook.uts.edu.au/directory/cbk90607</a></p> <p>Electives x 2</p>
<b>Physics Stream</b>		
<p>Mathematical Modelling for Science</p> <p>Chemistry 1</p> <p>Foundations of Physics</p> <p>Principles of Scientific Practice</p> <p>Statistics and Mathematics for Science</p> <p>Chemistry 2</p> <p>Physics in Action</p> <p>Introduction to Materials</p>	<p>Choose six subjects from Level 2 subject choices (Physical Sciences).</p> <p>See: <a href="http://handbook.uts.edu.au/directory/cbk90606">handbook.uts.edu.au/directory/cbk90606</a></p> <p>Electives x 2</p>	<p>Choose six subjects from Level 3 subject choices (Physical Sciences).</p> <p>See: <a href="http://handbook.uts.edu.au/directory/cbk90607">handbook.uts.edu.au/directory/cbk90607</a></p> <p>Electives x 2</p>
<b>Environmental Stream Environmental Stream</b>		
<p>Principles of Scientific Practice</p> <p>Chemistry 1</p> <p>The Biosphere</p> <p>Statistical Design and Analysis</p> <p>Biocomplexity</p> <p>Cell Biology and Genetics</p> <p>Physical Aspects of Nature</p> <p>Environmental Chemistry</p>	<p>Choose six subjects from Level 2 subject choices (Life and Environmental Sciences).</p> <p>See: <a href="http://handbook.uts.edu.au/directory/cbk90598">handbook.uts.edu.au/directory/cbk90598</a></p> <p>Electives x 2</p>	<p>Choose six subjects from Level 3 subject choices (Life and Environmental Sciences).</p> <p>See: <a href="http://handbook.uts.edu.au/directory/cbk90599">handbook.uts.edu.au/directory/cbk90599</a></p> <p>Electives x 2</p>
<b>Life Sciences Stream</b>		
<p>Cell Biology and Genetic</p> <p>Chemistry 1</p> <p>Principles of Scientific Practice</p> <p>Statistical Design and Analysis</p> <p>Chemistry 2</p> <p>Physical Aspects of Nature</p> <p>Biocomplexity</p> <p>Human Anatomy and Physiology</p>	<p>Choose six subjects from Level 2 subject choices (Life and Environmental Sciences).</p> <p>See: <a href="http://handbook.uts.edu.au/directory/cbk90598">handbook.uts.edu.au/directory/cbk90598</a></p> <p>Electives x 2</p>	<p>Choose six subjects from Level 3 subject choices (Life and Environmental Sciences).</p> <p>See: <a href="http://handbook.uts.edu.au/directory/cbk90599">handbook.uts.edu.au/directory/cbk90599</a></p> <p>Electives x 2</p>

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# Combined degrees

**Gain two qualifications in one when you combine your science or maths degree with another UTS course. Choose from Business, International Studies, Creative Intelligence and Innovation, Engineering or Law. You'll build a hugely diverse skill set and double your career opportunities at the same time.**



# Combine science or maths with business

Turn science into a business proposition with a combined degree that spans two of our most popular disciplines. These combined programs respond to a growing need for business practitioners with specialist expertise in science. Think management roles in organisations that deal with the environment, health or biomedicine, or apply your science and business know-how to the commercial world.

## COURSE STRUCTURE

You'll complete 32 subjects – 16 in Science, 16 in Business – for a total of 192 credit points. For the Bachelor of Science, Bachelor of Business you'll choose from 8 majors in Business and 10 in majors Science, and start building the specialist expertise that will lead to the job of your dreams.

For the Bachelor of Medical Science, Bachelor of Business; and the Bachelor of Biotechnology, Bachelor of Business degrees, you'll specialise in either Medical Science or Biotechnology and choose a Business major. You can also transfer from your single science or maths degree into a combined degree if you meet academic performance requirements.

## BACHELOR OF BUSINESS MAJORS

Accounting, Economics, Finance, Human Resource Management, International Business Management, Marketing, Marketing Communication.

## BACHELOR OF SCIENCE MAJORS

Chemistry, Applied Physics, Nanotechnology, Biotechnology, Biomedical Science, Medical Science, Environmental Sciences, Mathematics, Statistics, Flexible.

## Bachelor of Science, Bachelor of Business

<b>2019 Selection rank*:</b>	85.70
<b>Duration:</b>	4 years (full-time) 8 years (part-time)
<b>UAC code:</b>	609170

### CAREER OPTIONS

Depending your majors, work in the commodity, resource trading or pharmaceutical industries, or as a scientist in leading consumer goods companies, health services, medical research, hospitals or environmental protection agencies.

## Bachelor of Medical Science, Bachelor of Business

<b>2019 Selection rank*:</b>	92.95
<b>Duration:</b>	4 years (full-time) 8 years (part-time)
<b>UAC code:</b>	609175

### CAREER OPTIONS

Prepare for scientific practice or business management roles in health and medical businesses or institutions, including in the growth area of health services and management.

## Bachelor of Biotechnology, Bachelor of Business

<b>2019 Selection rank*:</b>	90.85
<b>Duration:</b>	4 years (full-time) 8 years (part-time)
<b>UAC code:</b>	609176

### CAREER OPTIONS

Work in science roles in the biotechnology industry or as a business professional in science-based businesses or institutions. Or, combine both skill sets to opportunities in the rapidly expanding biotechnology business sector.

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# Combine science or maths with creative intelligence and innovation

**Trailblazer? Change-maker? Game-changer? Entrepreneur?**

**The Bachelor of Creative Intelligence and Innovation (BCII) is a degree for students who have one eye on the future. The BCII is all about critical and creative thinking, problem-solving, invention, complexity, innovation, future scenario building and entrepreneurship. You'll undertake real-world projects and self-initiated proposals with a focus on innovative, creative and entrepreneurial outcomes including engaging with industry, government and community challenges.**

## **COURSE STRUCTURE**

The BCII is a combined qualification, which means you'll need to add it to an existing UTS undergraduate qualification – it's not a standalone course. You'll complete a total of 240 credit points – 144 from Science and 96 from the BCII. Subjects in the BCII are offered as July and Summer session intensives for the first three years, followed by a year of full-time study once you complete your Science degree. This is a four-year, full-time degree, and you'll spend approximately 24 hours on campus every week.

## Bachelor of Science, Bachelor of Creative Intelligence and Innovation

<b>2019 Selection rank*:</b>	81.90
<b>Duration:</b>	4 years (full-time) 8 years (part-time)
<b>UAC code:</b>	609585

### **CAREER OPTIONS**

Depending on your chosen major, you'll be able to apply your scientific knowledge to exciting areas of science or maths. Think roles in biotechnology, biomedical science, medical science, environmental management and forensics, mathematics, statistical modelling, applied chemistry, applied physics, nanotechnology and materials science.

## Bachelor of Forensic Science, Bachelor of Creative Intelligence and Innovation

<b>2019 Selection rank*:</b>	90.65
<b>Duration:</b>	4 years (full-time) 8 years (part-time)
<b>UAC code:</b>	609587

### **CAREER OPTIONS**

Apply your creative thinking and problem-solving skills to the world of forensic science. Get ready for roles like scenario planners; strategists; positions in state and federal law enforcement agencies (customs, NSW Police or the Australian Federal Police); and the pharmaceutical, medical, chemical and analytical industries, to name a few. You'll graduate with highly sought after skills like critical and creative thinking, invention, future scenario building and entrepreneurship – all highly valued in today's rapidly changing and globalised world.

# Combined degrees

## Bachelor of Biomedical Physics, Bachelor of Creative Intelligence and Innovation

<b>2019 Selection rank*:</b>	93.50
<b>Duration:</b>	4 years (full-time) 8 years (part-time)
<b>UAC code:</b>	609600

### CAREER OPTIONS

Use your expertise in physics and your out-of-the-box thinking to develop new diagnostic and therapeutic tools and methodologies. You'll be ready to apply your cross-disciplinary science skills in the areas of radiation oncology, medical imaging and radiation safety, to name a few.

## Bachelor of Medicinal Chemistry, Bachelor of Creative Intelligence and Innovation

<b>2019 Selection rank*:</b>	90.00
<b>Duration:</b>	4 years (full-time) 8 years (part-time)
<b>UAC code:</b>	609595

### CAREER OPTIONS

Prepare for roles in the medical and chemistry sectors where your knowledge of drug discovery and development, combined with your collaborative and creative thinking capabilities, will be valued.

## Bachelor of Advanced Science, Bachelor of Creative Intelligence and Innovation

<b>2019 Selection rank*:</b>	93.95
<b>Duration:</b>	4 years (full-time) 8 years (part-time)
<b>UAC code:</b>	609590

### CAREER OPTIONS

Combine your high-level research skills with the innovation mindset of the BCII and prepare for employment options in a wide variety of fields. Depending on your chosen major, you develop new vaccines, work in patent law and public health, invent new products, work in data analytics or the medical devices industry. You'll be ready to instigate, develop and lead new and exciting research teams and programs.

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# Combine science or maths with international studies

Combine your Science degree with the Bachelor of Arts in International Studies and prepare to spend a year in the world beyond UTS. You'll gain first-hand experience of life in another country, accrue course credit while you travel, and have the chance to see science in action outside of Australia. By building language skills, intercultural competence, and an appreciation of science as a global concern, you'll be boosting your career prospects too.

## COURSE STRUCTURE

In the early years of your degree, you'll be based at UTS where you'll combine your science subjects with language and culture studies based on your chosen country major. Once you've skilled up, you'll be ready to launch: you'll spend your fourth year overseas, putting your language and cultural nous to the test. UTS will also foot the bill for your overseas tuition, and for your travel to get you where you're going, so all you have to fund are your living and personal costs. The Bachelor of Arts in International Studies is not offered as a separate degree; it must be undertaken in combination with another UTS undergraduate degree.

## BACHELOR OF SCIENCE MAJORS

Chemistry, Applied Physics, Nanotechnology, Biotechnology, Biomedical Science, Medical Science, Environmental Sciences, Mathematics, Statistics, Flexible.

## BACHELOR OF ARTS IN INTERNATIONAL STUDIES IN-COUNTRY STUDY (COUNTRY OF CHOICE)

Argentina, Canada, Chile, China, Colombia, Costa Rica, France, Germany, Italy, Japan, Latino USA, Mexic, Spain, Switzerland.

## LEARN A NEW LANGUAGE

French, Spanish, Chinese, Italian, Japanese, German.

## Bachelor of Science, Bachelor of Arts in International Studies

<b>2019 Selection rank*:</b>	82.40
<b>Duration:</b>	5 years (full-time)
<b>UAC code:</b>	609250

## CAREER OPTIONS

Where you'll work depends on what you study – your majors, electives, and overall degree. The language and culture expertise of the International Studies degree can open the doors to global opportunities: think international companies such as Google, Facebook, Netflix, Deloitte, PWC, to name a few.

## Bachelor of Health Science in Traditional Chinese Medicine, Bachelor of Arts in International Studies

<b>2019 Selection rank*:</b>	93.00
<b>Duration:</b>	6 years (full-time)
<b>UAC code:</b>	609346

## CAREER OPTIONS

Spend a year in China with the International Studies degree and build authentic and culturally responsive skills – when you graduate, you'll be ready for public and private practice in Chinese medicine.

# Combined degrees

## Bachelor of Science (Analytics), Bachelor of Arts in International Studies

<b>2019 Selection rank*:</b>	91.35
<b>Duration:</b>	5 years (full-time)
<b>UAC code:</b>	609220

### CAREER OPTIONS

Become a global innovator in data analysis. Work as a data analyst, business analyst, market researcher, credit risk manager, stock market analyst or financial portfolio manager. Think companies like Google, APRA, ASIC, consulting firms or banks.

## Bachelor of Medical Science, Bachelor of Arts in International Studies

<b>2019 Selection rank*:</b>	91.75
<b>Duration:</b>	5 years (full-time)
<b>UAC code:</b>	609255

### CAREER OPTIONS

Work in drug registration, clinical trials coordination, as technical or marketing representatives and as policy analysts for multinational pharmaceutical companies.

## Bachelor of Forensic Science, Bachelor of Arts in International Studies

<b>2019 Selection rank*:</b>	89.25
<b>Duration:</b>	5 years (full-time)
<b>UAC code:</b>	609252

### CAREER OPTIONS

Depending on your chosen major, possible jobs include: crime scene officer, DNA profiler, forensic laboratory scientist, expert witness, forensic trace evidence specialist, analytical chemist, clinical toxicologist. Or you could take your international experience overseas, working at university or research institutions that specialise in forensic science.

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Combine science or maths with engineering

**With a combined Science and Engineering degree, you'll gain the technological expertise to determine scientific problems, plus the practical engineering skills needed to implement effective solutions. Add to this cutting-edge practical laboratory skills as well as an understanding of intellectual property and the ethical issues related to science research. If you're interested in medical science, the scientific basis of engineering and technology, plus technology itself, then this course is for you.**

## COURSE STRUCTURE

For the Bachelor of Science, Bachelor of Engineering (Honours) you'll choose from 10 majors in Science, and 8 majors in Engineering. For the Bachelor of Medical Science, Bachelor of Engineering (Honours), you'll choose an Engineering major, and explore medical science subjects, from chemistry, biology and biochemistry, to anatomy, microbiology, neuroscience and medical devices.

In both combined degrees, you'll boost your employability even more with a minimum of 12 weeks of engineering work experience. Keen for more? Add on a Diploma in Professional Engineering Practice by completing two six-month internships and the professional engineering practice program.

## BACHELOR OF SCIENCE MAJORS

Chemistry, Applied Physics, Nanotechnology, Biotechnology, Biomedical Science, Medical Science, Environmental Sciences, Mathematics, Statistics, Flexible.

## BACHELOR OF ENGINEERING (HONOURS) MAJORS

Data Engineering, Electrical Engineering, Electronic Engineering, Software Engineering, Civil Engineering, Mechanical Engineering, Mechatronic Engineering, No specified major.



# Combined degrees

## Bachelor of Science, Bachelor of Engineering (Honours)

<b>2019 Selection rank*:</b>	80.20
<b>Duration:</b>	5 years full-time (part-time available for domestic students)  Add an extra year if undertaking the Diploma in Professional Engineering Practice  Add an extra year if undertaking Science Honours
<b>UAC code:</b>	609360

### CAREER OPTIONS

Depending on your chosen science and engineering major, you could find opportunities in medical technology and instrumentation, biotechnology and bioengineering, nanotechnology and molecular biology, mining, agriculture and fisheries, environmental science, analytics and data analysis, food and drink, product design, pest control or pharmaceuticals.

## Bachelor of Medical Science, Bachelor of Engineering (Honours)

<b>2019 Selection rank*:</b>	87.10
<b>Duration:</b>	5 years full-time (part-time available for domestic students)  Add an extra year if undertaking the Diploma in Professional Engineering Practice  Add an extra year if undertaking Science Honours
<b>UAC code:</b>	609370

### CAREER OPTIONS

Positions in biotechnology, communications, construction, energy and resource exploration and development, environmental protection and management, materials technology, mathematical modelling, medical technology and instrumentation, molecular biology, nanotechnology and transportation.

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Combine science or maths with laws

**Future lawyer? Scientist of tomorrow? Little bit of both? This degree will prepare you for specialist scientific legal roles – think patent, environmental and medical lawyer or expert witness. The good news? Specialist scientific lawyers, and those with an understanding of the law when it comes to research and industrial and commercial enterprise, are in high demand – so you will be too.**

## COURSE STRUCTURE

With the Bachelor of Science, Bachelor of Laws, you'll choose from one of 10 Science majors. Then you'll delve into common law and the broader Australian legal system before building specialist expertise through your electives and majors – you can choose science-specific subjects like biomedical law, bioethics, and intellectual property law, or branch out into emerging legal technologies with the Legal Futures and Technology major.

In the Bachelor of Medical Science, Bachelor of Laws, you'll learn about medical and health practice, medical and biological research, industrial and commercial enterprise, all areas of medical science where legal expertise is of crucial importance.

If you've ever imagined yourself in the lab – or at a crime scene – using science to enforce the law, the Bachelor of Forensic Science, Bachelor of Laws could be for you. As a Forensic Science student, you'll choose from one of four majors, working in world-class facilities that have been modelled on operational labs. In the Law component, you'll study the foundations of the law before choosing an elective path that complements your scientific interests. And with the unique Legal Futures and Technology major, you can even build niche skills in tech-specific areas like bitcoin, smart contracts, AI and blockchain as they relate to legal practice.

## BACHELOR OF SCIENCE MAJORS

Chemistry, Applied Physics, Nanotechnology, Biotechnology, Biomedical Science, Medical Science, Environmental Sciences, Mathematics, Statistics, Flexible.

## BACHELOR OF FORENSIC SCIENCE MAJORS

Biology, Chemistry, Crime Scene Investigation, Digital Forensics.

## Bachelor of Science, Bachelor of Laws

**2019 Selection rank\*:** 97.30  
**Duration:** 5 years (full-time)  
**UAC code:** 609060

### CAREER OPTIONS

Depending on your chosen Science major, positions include patent lawyers, environmental lawyers or medical lawyers. Graduates can work in areas including biotechnology, environmental biology, human health, intellectual property, industrial and occupational health and safety, patent development and scientific research.

## Bachelor of Forensic Science, Bachelor of Laws

**2019 Selection rank\*:** 96.15  
**Duration:** 5 years (full-time)  
**UAC code:** 609068

### CAREER OPTIONS

Examples include a lawyer (solicitor or barrister) specialising in the analysis of forensic reports and cross-examining expert witnesses or a forensic scientist providing independent, objective expert scientific opinion and evidence to the justice system and community within your chosen field of forensic discipline (major).

# Combined degrees



## Bachelor of Medical Science, Bachelor of Laws

<b>2019 Selection rank*:</b>	97.15
<b>Duration:</b>	5 years (full-time)
<b>UAC code:</b>	609065

### CAREER OPTIONS

This course lays the groundwork for a specialist career in the field of health care law. Graduates can work as lawyers, in-house counsel, policy makers or researchers in areas where a strong background in human biology, medical diagnostics, neuroscience or pharmacology is valued.

\*Selection ranks: published ranks indicate the lowest selection rank (ATAR plus any adjustment points applied through eligible admissions schemes) to which an offer was made to a domestic Current School Leaver (Year 12) in the Autumn 2019 intake (for December Round 2 and January Round 1).

# Get more out of uni

**There's a whole lot more to uni than life inside the classroom, and at UTS we've got the programs to prove it. Choose from a range of extracurricular options to boost your employment opportunities, learn a new language or just get out there and make new friends. Making the most of your UTS experience starts with you.**

## + Add the Diploma in Innovation

### **Future proof your UTS degree**

Rather than building the skills for a specific career, the Diploma in Innovation is about preparing for the future of work. In fact, it responds directly to industry demand for graduates who can demonstrate inter- and transdisciplinary approaches in their professional practice. There's an emphasis on entrepreneurial thinking, too: by the time you graduate, you'll be ready to be an entrepreneur, serve entrepreneurial clients, or integrate entrepreneurial processes into your day-to-day work.

Add the diploma to your UTS bachelor's degree, and what's more, all your diploma subjects will be offered as winter and summer school intensives – so even though you're adding an extra qualification, you'll still graduate on time.

Find out more at [dipinn.uts.edu.au](http://dipinn.uts.edu.au)

## + Add the Diploma in Languages

### **Gain a global outlook**

Bring the world to your doorstep with a Diploma in Languages. Add this year-long diploma to your UTS degree to gain language and cultural skills, build your professional identity, and graduate with a range of capabilities that'll prepare you for an international career. Language options include Chinese, French, German, Italian, Japanese and Spanish.

No need to apply just yet – the diploma is available to students already studying an undergraduate or postgraduate coursework degree program at UTS, so sign up when you enrol. No matter what you study, the diploma can give your qualification an international edge.

## INTERNSHIPS

It's no secret that completing an internship or professional placement while you study is a great way to give yourself a competitive edge. At UTS, we don't just encourage all our students to gain professional experience – we've got dedicated staff who are here to connect you with real-world opportunities. As a science student, the opportunities are endless – you could sign up for an on-campus research project, immerse yourself in lab-based hospital work, put your maths to the test with a placement at a bank or become an intern with a national conservation program. Whatever your interests, you'll be supported by UTS Science and UTS Careers to secure a truly inspiring experience.

## BUILD LEADERSHIP PROGRAM

Born leader? Find out what you're made of with the UTS BUILD (Beyond UTS International Leadership Development) program. Attend workshops and events, enrol in short-term study programs, meet leaders in your industry or make a meaningful difference through BUILD's national and international volunteer programs. It's all about harnessing your creative, collaborative and entrepreneurial skills and using your smarts to shape the world for the better.

Head to [uts.edu.au/build](https://uts.edu.au/build) to find out more.

## GLOBAL EXCHANGE

Keen to experience uni life overseas? With the UTS Global Exchange program, you can take your degree out into the world. Spend one or two teaching sessions at an overseas university – we've got 240 partner unis in more than 40 countries and territories to choose from. The only challenge is picking just one!

Head to [uts.edu.au/global-exchange](https://uts.edu.au/global-exchange) to find out more.

## UTS STARTUPS

All it takes is one big idea. UTS Startups is a university-wide incubator program that's been designed with student entrepreneurs in mind. Gain access to a unique co-working space, attend innovation and business development workshops, and engage with mentors in the industry in which your start-up idea is based – everything you need to take an idea from concept to reality. Whether you're at the brainstorming stage or you've already launched your own business, UTS Startups is the place for you.

Visit [startups.uts.edu.au](https://startups.uts.edu.au) to learn more.

## ACCOMPLISH AWARD

Getting into UTS is an accomplishment in itself – but you can take it one step further with the UTS Accomplish Award. This program is all about helping you to enhance your employability by understanding the recruitment process and knowing how to talk up your skills. Attend interactive workshops, engage with experiential events and build the confidence and industry-relevant expertise that'll set you apart.

Find out more at [uts.edu.au/accomplish-award](https://uts.edu.au/accomplish-award).

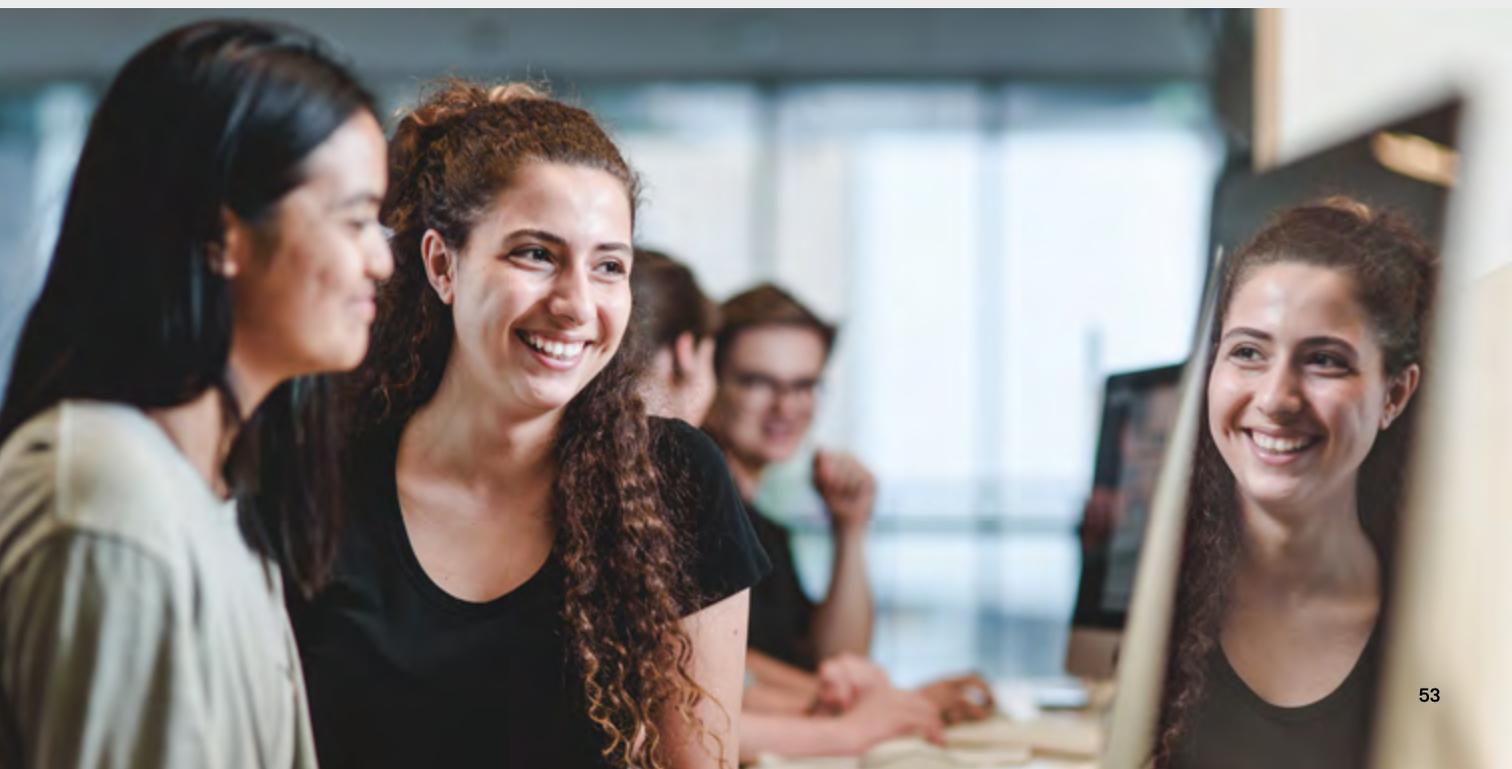
## JOIN A CLUB

All work and no play? It's no good for anyone! Make the most of your UTS experience by getting involved in campus life. We've got more than 100 clubs and societies to choose from, as well as cafes, bars and sports facilities – whatever your interests, the UTS campus has something for you.

## STUDENT SUPPORT

University study can be a steep learning curve – and that's before you throw in the work, home, finance and family commitments that make up off campus. The good news? We've got a wealth of support services to help you through, such as our Peer Network and the Maths & Science Study Centre.

Read more at [uts.edu.au/uts-support-services](https://uts.edu.au/uts-support-services).



# Got a question?



## WHAT IF I DON'T GET THE SELECTION RANK\* FOR MY PREFERRED COURSE?

Don't panic! If your Selection rank\* wasn't what you were hoping for, our aptitude assessment can provide an alternative entry into your chosen UTS Science degree. These tests measure things like critical and analytical thinking and other skills that can demonstrate your aptitude for science. If you do well in the test, you may receive an offer from UTS.

Find out more at [aptitude.science.uts.edu.au](http://aptitude.science.uts.edu.au)

Another option is to choose a similar UTS degree that has a lower Selection rank\* entry score, and then apply to transfer into your preferred degree at the end of your first year of study. It's a competitive process, so make sure you study hard – both your Selection rank\* and your first-year results will be considered as part of your transfer application.

## WHAT ARE THE PRE-REQUISITES FOR UTS SCIENCE COURSES?

There aren't any. We assume you've got an existing level of knowledge when it comes to science – that you've passed the relevant HSC subjects for your course, for example – but there are no specific pre-requisites you need to complete before you apply. A pre-requisite is a subject that must be completed before enrolment in another specified subject.

Find out more about assumed knowledge for UTS Science courses by viewing the key information box for each degree in this guide, or visiting the online UTS Handbook. Need a refresher in physics, chemistry or mathematics? Consider enrolling in a UTS bridging course to get your skills up to speed.

Read more about bridging courses at [uts.edu.au/science-bridging-courses](http://uts.edu.au/science-bridging-courses)

## HOW MANY HOURS WILL I BE AT UNIVERSITY EACH WEEK?

As a full-time student, you'll normally have about 20 contact hours a week in your first year of study. You'll also need to allocate another 20-ish hours to study and prepare for assessments outside of class times, so you should expect to commit about 40 hours a week to the business of being a student.

## HOW IS UNI DIFFERENT TO HIGH SCHOOL?

If you're coming straight from high school, the biggest difference is that at uni, you're treated like an adult. This means being prepared for your classes, participating in group projects, managing your study time and completing assignments by the deadline. You won't be in class all day – or even all week depending on your study load and subjects. Some subjects have a lecture, a tutorial and a laboratory practical.

UTS has an autumn, spring and summer session (though not all classes are run during summer). You can see the academic timetable for UTS at [handbook.uts.edu.au/dates\\_academic](http://handbook.uts.edu.au/dates_academic). At uni, you'll get to study and socialise with lots of different people, use your own ideas and skills, and discuss important concepts with your lecturers and other students in your classes. Best of all, you can choose what extra-curricular activities you get involved in – from social clubs and societies to competitive sports and student politics.

### CAN I START MY COURSE HALFWAY THROUGH THE YEAR?

Yes, depending on your degree – not all courses have a mid-year intake. Check the details of your preferred degree at [science.uts.edu.au/future](https://science.uts.edu.au/future)

### WHAT ARE CREDIT POINTS?

Credit points are the value of each subject or unit of study, and they reflect a common measure of load across all UTS courses. Each subject/unit is normally worth six credit points, but there are some exceptions. A standard full-time load of study usually consists of 48 credit points in one calendar year.

### WHAT IS AN ELECTIVE?

Most courses are a combination of core and elective subjects. Core studies are compulsory; with electives, you can choose what you study. Opt for subjects within your discipline area, or broaden your skills by taking electives in another UTS faculty. As a Science student, you can also use your electives to undertake an internship subject, and/or participate in a UTS study abroad or global exchange program.

### CAN I STUDY PART-TIME?

Most UTS courses offer a part-time study option where you'll study roughly half the subject load of a full-time student. In some cases, you can take evening courses, although these aren't offered for every subject. A standard full-time load is 24 credit points per semester, and a standard part-time load is less than 12 credit points. Please note: 18 credit points is classified as part-time for government reporting purposes.

### CAN I APPLY TO TRANSFER FROM ONE SCIENCE DEGREE TO ANOTHER?

Sure, as long as you meet the academic requirements for the course you want to get into. Your application to transfer – and any request you make for credit recognition – will be based on your previous academic achievements, so make sure you study hard in your original degree. Before you submit an application to transfer, have a chat to your course or program director for advice.

### CAN MY PREVIOUS STUDIES BE CREDITED TOWARDS MY UTS DEGREE?

Credit recognition is granted on a case-by-case basis, so you'll need to apply. Generally, if you've undertaken previous study at an accredited institution and the subjects you studied were relevant to your UTS degree, then you should be in with a shot.

See more info at [handbook.uts.edu.au/general/rpl](https://handbook.uts.edu.au/general/rpl)

### WHAT DO I NEED TO DO TO BECOME A SCIENCE OR MATHS TEACHER?

Once you've completed your UTS Science or Maths degree, you can apply for a Master of Teaching in Secondary Education, also at UTS. This degree combines teaching theory, methodologies and practical experience, and will prepare you to teach science, maths or both in NSW secondary schools. If you've completed the required undergraduate degree and specialist subjects, you can complete the course in 2 years of full-time study or 1.5 years in accelerated mode.

### WHO CAN I TALK TO ABOUT MY UTS STUDY OPTIONS?

Ask a question or request an appointment with a UTS Science staff member by emailing [science.future@uts.edu.au](mailto:science.future@uts.edu.au). You can also call the UTS Student Centre on 1300 275 887. Better yet, attend one of our info days where you can talk to academics and current students.

For more details, see [science.uts.edu.au/future](https://science.uts.edu.au/future)



\*Your Selection rank is your ATAR plus any adjustment points that you may qualify for through a UTS admission scheme.

# Applying to UTS

It's time! Join the innovation generation as a student at UTS.

Here's how:

1

## Find a course

Choosing what to study is a big decision. Start by checking out the course information pages of this guide (pages 7 – 51), as well as the UTS website.

[uts.edu.au/find-right-ug-course](https://uts.edu.au/find-right-ug-course)

2

## Check your admission requirements

Once you've chosen a course, check that you meet the admission requirements.

### High school leavers:

If you're completing your HSC (or equivalent) in 2019, we'll assess your application based on your selection rank for entry into most UTS courses. Your selection rank is a combination of your ATAR/IB score, plus any adjustment points you receive (read more about adjustment points on page 58).

### Mature age and non-current school leavers:

If you're not a high school leaver, you'll be assessed on criteria such as your ATAR, post-school qualifications, or relevant work experience, along with any additional selection criteria.

[uts.edu.au/ug-optional-selection-criteria](https://uts.edu.au/ug-optional-selection-criteria)

### Indigenous students:

If you're an Australian Aboriginal or Torres Strait Islander, the Jumbunna Institute for Indigenous Education and Research can help you get in to UTS through the Jumbunna Pathways Program or Unistart Program (see pages 58 – 59).

[uts.edu.au/apply-jumbunna-pathways](https://uts.edu.au/apply-jumbunna-pathways)

[uts.edu.au/unistart](https://uts.edu.au/unistart)

### International students:

This guide is not intended for international students. If you're an international student looking for course and application information, please use the UTS International website and course guide.

If you're not a citizen or permanent resident of Australia, or a citizen of New Zealand, you must apply as an international student directly through UTS International.

Tel: 1800 774 816  
(free call within Australia)

Tel: +61 3 9627 4816  
(for international calls)

[international.uts.edu.au](https://international.uts.edu.au)

### Check if you're eligible for scholarships:

When? Scholarship applications open as early as April 2019. See what's on offer and check your eligibility on our website.

[uts.edu.au/scholarships](https://uts.edu.au/scholarships)

### Check if you're eligible for admission schemes:

There's more than one way to get into uni. We offer a range of admission schemes that can help get you into the course you want. See page 58 for a list of schemes.

### 3 Visit UTS

Come and say hello at one of our events or faculty info sessions – it's a great way to get to know UTS. And don't miss UTS Open Day (Saturday 31 August 2019), the biggest day on campus, where you'll have the chance to explore your course and career options.

[undergraduate.uts.edu.au/events](https://undergraduate.uts.edu.au/events)

[openday.uts.edu.au](https://openday.uts.edu.au)

### 4 Apply through UAC

Applications for most UTS undergraduate courses must be lodged online through the Universities Admissions Centre (UAC). On-time applications close at the end of September 2019\*. Be sure to have your UTS preferred course as your first preference.

Application information is available in the UAC Guide and on the UAC website. If you're a Year 12 student, you can obtain a free copy of the guide from your school. Some courses have additional selection criteria, so you may need to submit extra material to UTS in addition to your UAC application. Check out the UTS Handbook for more information about applying for your chosen course.

[uac.edu.au](https://uac.edu.au)

[handbook.uts.edu.au](https://handbook.uts.edu.au)

### 5 Review your options

#### Are you eligible for subject points?^

Once your results are released, visit our Year 12 Subject Scheme table with your performance bands in hand to see if you're eligible for an adjustment of up to five points towards your selection rank. These subject points are in addition to any points you may receive from one of our other admission schemes.

[uts.edu.au/ug-admissions-schemes](https://uts.edu.au/ug-admissions-schemes)

### 6 Accept your offer

The majority of our offers are released during December Round 2 via UAC on 23 December 2019\*. Check the UAC website for offer round dates.

Offers will be made to eligible IB students in January following the release of your results.

[uac.edu.au](https://uac.edu.au)

### Once you're in...

You're in! If you receive an offer to study at UTS, keep the following dates in mind.

#### 17 Feb – 6 March 2020:

Orientation Autumn Session for new students.

#### Monday 9 March 2020:

Autumn Session begins.

^For high school leavers only.

\*Correct at the time of printing. Visit [uac.edu.au](https://uac.edu.au)

# Admission schemes

Boost your chances of receiving an offer from UTS with one of our **admission schemes**. When we assess your application, we'll consider criteria beyond your ATAR, such as your academic performance in certain HSC subjects, disadvantageous circumstances you may have experienced, or your identification as Aboriginal or Torres Strait Islander.

**Please note:** you'll need to submit an application if you want to be considered for the admission schemes listed below. Only the Year 12 Subject Scheme and the equity-funded school concession points are automatically assessed.

## Year 12 Subject Scheme

If you're a current high school student (both HSC and IB), you'll be automatically assessed for this scheme. The Year 12 Subject Scheme awards additional points (called adjustment points) towards your selection rank based on your performance in high school subjects that are relevant to your chosen course.

## Business Cadetship Scheme

If you're planning to apply for a UTS Business, Economics or Management standalone degree, and you've received a cadetship offer from a company, you could be eligible for an additional five adjustment points towards your selection rank.

## Engineering and IT Questionnaire

The Engineering and IT Questionnaire is about understanding your motivation to study engineering or IT. If we can see that you're genuinely dedicated to pursuing a degree in one of these disciplines, it'll increase your chances of receiving an offer, even if your selection rank is 1-3 points below the cut-off for your preferred course.

## Science Aptitude Assessment

The Science Aptitude Assessment is an opportunity for you to demonstrate your potential, and possibly secure an offer to study science at UTS. The assessment is designed to assess your analytical and critical thinking skills. It is a general knowledge-based assessment with no need for dedicated study.

## inpUTS-Educational Access Scheme

If you've experienced long-term educational disadvantage as a result of family, personal or financial circumstances, you can apply for inpUTS, our Educational Access Scheme (EAS). If you're eligible for inpUTS, you'll be considered for a place at UTS, even if your selection rank is up to 10 points below the cut-off for your preferred course.

## Schools Recommendation Scheme

We're dedicated to supporting students who have the potential to succeed at university, even if they don't receive an offer based on their selection rank alone. To be eligible for our Schools Recommendation Scheme (SRS), you must demonstrate financial hardship or be automatically eligible for the geographic area code disadvantage (AG01) and achieve a minimum ATAR of 69 (or 80 for Law).

## Elite Athletes and Performers Special Admissions Scheme

If you're an elite athlete or performer and your commitments outside school have impacted on your studies, you can apply for our Elite Athlete and Performers Scheme. This scheme can give you five additional adjustment points towards your selection rank.

## Jumbunna Pathways Program

Available to Aboriginal and Torres Strait Islander students who aspire to study at university, and may not otherwise have the qualifications to apply. Your application will be assessed based on factors including previous life skills and experience, education and work experience. Applications are direct to Jumbunna.

Visit our website to see a full list of our admission schemes.

[uts.edu.au/admission-schemes](https://uts.edu.au/admission-schemes)

# Admission pathways

**Admission pathways** are alternative ways to get into your preferred course if you don't receive the ATAR you need. UTS pathways include TAFE courses, diplomas and other formal qualifications that can get you back on track.

## Enrol in a related course

Start by choosing a different UTS course – ideally, pick one with a lower ATAR that's still similar to the course you want (hint: some combined degrees have a lower cut-off than a single degree).

Then, think about the following options:

- **Use your electives to get a great degree experience**

With electives, you can enrol in subjects that interest you from almost any UTS faculty – so you can still study what you're passionate about, no matter which degree you're in.

- **Re-apply after a year**

Once you've completed a year of full-time study at UTS or another institution, you can apply to your preferred course via UAC. We'll assess both your ATAR and the marks you earn in your first-year subjects. Make sure you study hard – it's a competitive process, so getting good results in first year is essential. You may also be eligible for credit recognition for certain subjects completed during the year.

- **UTS Insearch diplomas**

Fast-track your way into the second year of your chosen UTS degree\* by completing a higher education diploma at UTS Insearch. As the leading pathway provider to UTS, UTS Insearch offers diplomas in six disciplines: business, communication, design and architecture, engineering, information technology and science. These diplomas are designed in collaboration with UTS, so you'll gain the same educational outcomes as a first-year UTS student.

[insearch.edu.au](https://insearch.edu.au)

\*Domestic student? If you successfully complete a UTS Insearch diploma with the required grade point average (GPA), you'll be guaranteed entry into a UTS degree. In most cases, you'll also receive up to 48 points of recognition of prior learning.

- **TAFE or private college diploma**

Studying a different university course is a great way to gain entry into your preferred degree – but so is completing an Australian Qualifications Framework Diploma at TAFE or a private college. If you achieve good marks, the diploma can add value to your application for the majority of UTS bachelor degrees. You may also be eligible for recognition of prior learning for certain subjects.

- **Retake your HSC at TAFE**

Have a do-over. By spending a year at TAFE, you can redo your HSC in a single year – which means you'll get a new ATAR at the end.

## Jumbunna Unistart Program

Jumbunna Unistart is a unique twelve-month program offered to Aboriginal and Torres Strait Islander students. You attend small classes at Jumbunna that are designed to build your confidence and academic skills in writing and mathematics, along with select subjects from your chosen degree. When you have successfully completed the program, you will progress fully into your chosen degree and receive recognition of prior learning.

Visit our website to see a full list of our admission pathways.

[uts.edu.au/admission-pathways](https://uts.edu.au/admission-pathways)

# Scholarships

At UTS, we're all about rewarding effort – and supporting circumstance. That's why we offer more than \$12 million in UTS coursework scholarships and prizes every year. If you're a high achiever, in financial need, or if you're from a diverse background, a UTS scholarship can help take care of your finances so you can focus on the important stuff.

## Scholarships for high achievers

Academic achievement is worth celebrating – and our high achievers' scholarships do just that. Some scholarships are awarded across all UTS undergraduate degrees (e.g. the UTS Vice Chancellor's Outstanding Achievement Scholarship, valued at \$12,500 per year for the duration of the course), while other scholarships are offered through our faculties (e.g. the UTS Business Dean's Scholarship, valued at \$30,000).

## Equity scholarships

Our equity scholarships aim to overcome financial disadvantage in whatever form it takes. Whether you have a disability or ongoing medical condition, a rural home address, a refugee background or carer's responsibilities, these scholarships can help make university study possible.

## Scholarships for women

We pride ourselves on providing an inclusive work and study environment for women – in fact, we've been consistently recognised by the Workplace Gender Equality Agency for our efforts. We offer several scholarships to encourage women to undertake study in different areas.

## Scholarships for Indigenous Australians

We're committed to offering scholarships and prizes to support Aboriginal and Torres Strait Islander students. Some of these are awarded on academic merit while others are equity-based.

## Scholarships for athletes

You've given your life to your sport – now let your sport give something to you. ActivateUTS assists students to combine high-performance sport with their studies, so you'll be supported to excel in both areas. They offer three scholarships: the Elite Athlete Program, Emerging Athlete Program and Elite Athlete Housing Scholarship.

We also offer a few other scholarships for athletes to assist you in pursuing your academic and sporting goals.

## Application dates

Scholarship application dates vary. Be sure to check the UTS scholarship website for specific closing dates.

## Which scholarship is right for me?

With so many scholarships on offer, it can be tricky to figure out which ones you're eligible for. Use our online search tool to filter scholarships according to the criteria that best describes you.

To find out more info on scholarships visit

[uts.edu.au/scholarships](https://uts.edu.au/scholarships)

# Fees and financial assistance

Uni fees can be confusing – how much you pay depends on the uni you choose, the course you study and the subjects you enrol in. Here's a quick guide to student fees at UTS.

## Domestic students

As a domestic student, you'll most likely be studying in a Commonwealth Supported Place. This means the Australian Government makes a contribution to the cost of your study, while you pay a student contribution.

### – Student contribution

The Australian Government has classified each unit of study into various bands depending on the study area. Your student contribution is calculated based on the subjects you enrol in each session.

### – HECS-HELP

Most domestic students pay their student contribution through the HECS-HELP scheme. This means the government lends you the money for your student contribution and pays it directly to the university. HECS-HELP is available to Australian citizens, students on humanitarian visas and holders of a New Zealand SCV that meets the long-term residency requirements (note that if you're a New Zealand citizen and do not meet eligibility requirements, or if you hold an ordinary permanent resident visa, you'll need to pay your fees upfront). You'll start repaying your HECS-HELP loan after graduation, once your income reaches the repayment threshold.

Don't want to incur a HECS-HELP debt? You can pay your student contribution up front every session – just make sure you pay it by the due date.

For more information on HECS-HELP, visit the StudyAssist website.

[studyassist.gov.au](https://studyassist.gov.au)

### – Student Services and Amenities Fee

The Student Services and Amenities Fee funds a wealth of activities and services for all UTS students, so it makes a huge difference to your uni experience. The fee pays for things like social and cultural clubs; study skills services; and ActivateUTS food, beverage and retail outlets.

[uts.edu.au/student-services-and-amenities-fee](https://uts.edu.au/student-services-and-amenities-fee)

## International students

This guide is not intended for international students. For information on fees for international students, visit the UTS International website.

[international.uts.edu.au](https://international.uts.edu.au)

## UTS financial assistance

Uni life can be a bit of a juggle, so if you're struggling with your finances, the Financial Assistance Service can help. Our team assists with the practical and financial aspects of life at university, including information on the Centrelink Student Support benefits, government HECS and FEE-HELP tuition loans, help with planning your budget to survive uni on your income, providing support such as nil-interest short-term UTS student loans and help with completing PAYG annual income tax returns. They also support equity-based programs, grants and scholarships to help low-income domestic students in financial need. This funding can help you meet the costs of your classroom resources, like textbooks and laptops, or add-on costs that result from internships and workplace practical experience requirements.

[uts.edu.au/financial-assistance](https://uts.edu.au/financial-assistance)

### Government income support

If you're an Australian citizen or permanent resident, you may be eligible for a Centrelink benefit. Visit the Department of Human Services website for more information.

[humanservices.gov.au](https://humanservices.gov.au)

## UTS Open Day

Saturday 31 August 2019

9am – 4pm

Register at [openday.uts.edu.au](http://openday.uts.edu.au)

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