

UTS:  
**SCIENCE**

UNDERGRADUATE COURSES GUIDE 2016  
Science and Mathematics Courses at UTS

# WELCOME TO UTS: SCIENCE

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# WHY SCIENCE AT UTS?



## **UTS Biomedical Science** is the only program accredited by the Australian Institute of Medical Scientists (AIMS)\* in Sydney

### STUDY WITH THE BEST

Learn from academics who are also experts in their fields with a wealth of knowledge and experience in academia and industry. Example, Professor Les Kirkup was awarded the 2014 Australian Institute of Physics medal for his work in undergraduate science education.

### GET REAL WORLD EXPERIENCE

You will be experimenting in the labs from day one. Practical elements are not limited to lab practical or fieldwork as you will have the opportunity to network with industry practitioners through guest lectures. Students studying mathematics are exposed extensively to new software applications.

### WORLD-CLASS FACILITIES

Benefit from one of the best science facilities in the country where you will be exposed to modern, state-of-the-art facilities. You will have classes in a multi-disciplinary Super Lab where you'll learn science in a new way.

### GAIN A GLOBAL OUTLOOK

Combine your Science or Mathematics courses with the Bachelor of Arts in International Studies and spend a year studying overseas and add a global outlook to your resume. You will be highly sought-after as a UTS graduate.

### NETWORK WITH THE BEST

UTS is partnered with more than 150 companies including Agilent Technologies, CSIRO and the Department of Primary Industry.

### RESEARCH FOR THE FUTURE

Join a faculty with an impressive research profile – UTS Science contributes about 60 percent of UTS's total research output. Add an honours year to your course and pursue research that matters (to you and the community).

NO. 1

**UTS RATED  
SYDNEY'S #1  
YOUNG\* UNI**

\*That's unis under 50 years – QS Top 50 under 50, 2014/2015

Note: \*AIMS accreditation allows graduates to practice in medical labs in the UK and USA, expanding your career opportunities





Thomas Street Building, home to UTS Science's new Super Lab and Crime Scene Lab

# AUSTRALIA'S MOST INNOVATIVE CAMPUS

**UTS is creating a vibrant campus of the future. Embracing visionary teaching and learning paradigms, this reinvented campus will revitalise the campus environment with new buildings, renovated facilities and increased public spaces to facilitate collaboration with industry and the UTS community.**

## JOIN THE IDEAS HUB

The arrival of the Dr Chau Chak Wing Building, designed by world-renowned architect Frank Gehry, solidifies UTS's place in Sydney city's creative precinct. The building embodies the UTS Business School's commitment to fostering ideas and collaboration with industry and research.

Experience learning spaces that encourage collaboration and innovation, both in formal and informal learning environments.

## A SPACE TO BE CREATIVE

The Faculty of Design, Architecture and Building has undergone a transformation over the past years. With state-of-the-art facilities ready and waiting for you, including the Digital Workshop, Fashion and Textile Studio, Photo media Studio, Motion Capture Lab, and many more.

## LEADING EDGE HEALTH AND SCIENCE PRECINCT

UTS Science is expanding with another modern and state-of the art building opened in 2015. With the new 'Super Lab', we'll revolutionise the way science and mathematics is taught at UTS. And you'll be one of the first to experience it.

## STUDY IN A LIVING LAB

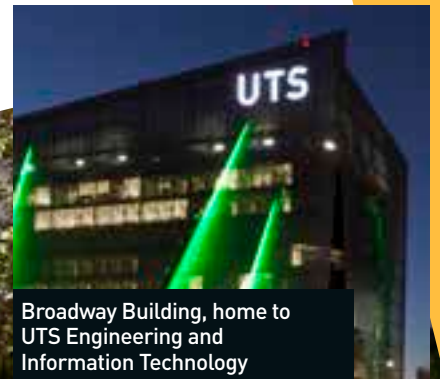
With its unique binary code screen design, the newly opened Engineering and IT Building is the single-largest facility to be constructed under UTS's \$1.2 billion City Campus Master Plan. It features a 3D data arena, collaborative theatres and sensors through the building that display real-time data for research purposes.

## A PLACE TO FLEX YOUR NEW SKILLS

With cutting-edge simulation technologies across 16 purpose built nursing and midwifery clinical labs, you'll be learning in the most highly developed laboratories on the East Coast of Australia. Our well-equipped sports and exercise labs will enable you to test and assess physical activity, strength, health and fitness levels.



**Dr Chau Chak Wing Building, a Frank-Gehry inspiration and home to UTS Business School**



**Broadway Building, home to UTS Engineering and Information Technology**





# WORLD-CLASS FACILITIES

## Scientific hub of the future



Coral tank

UTS invested significantly in its science facilities, making it one of the best in Australia with a multi-disciplinary Super Lab, Crime Scene Lab, Advanced Labs and many more.

This February, another key piece of our facilities opened its door, adding more purpose-built spaces for collaborative learning and research.

Our facilities encourages students to develop their practical skills and by giving students access to modern and state-of-the-art scientific equipment, they gain essential experience and confidence for their future workplace.



Nuclear Magnetic Resonance

### TEACHING LABS

Our teaching laboratories are fitted with scientific and analytical instruments, e-lecterns and computers. They are used solely for practical.

We also have off-campus learning sites in Stroud, near Newcastle which provides access to forests, rivers, bugs and animals for our environmental students.

### MATHS COMPUTING LABS

Students studying mathematics have access to modern computer labs with current mathematical and statistical software, e-learning support and advanced computing facilities.

UTS collaborates closely with the Australian Consortium for Advanced Computing and Communications (Ac3) giving students access to state-of-the-art computing facilities.

### CHINESE MEDICINE CLINIC

Our on-campus outpatient clinic is open to the public and enables students to practice treatments in acupuncture, Chinese herbal medicine and Chinese medicine remedial massage. UTS is only a handful of English language universities in the world to offer comprehensive professional education and research in traditional Chinese medicine.

### RESEARCH LABS

Our research labs have been purposed built to ensure researchers have modern instruments and are close to their labs.

Research is important at UTS Science proven by its contribution of about 60 percent to UTS total research output.

To view UTS Science research facilities, visit [www.uts.edu.au/about/faculty-science/what-we-do/facilities/research-facilities](http://www.uts.edu.au/about/faculty-science/what-we-do/facilities/research-facilities)



Chinese Medicine Outpatient clinic

# WHICH COURSE IS FOR YOU?

Our science and mathematics courses are practical and relevant. Your study program will include compulsory subjects giving you the building blocks of your scientific knowledge and education.

Here are some commonly asked questions to help you.

**“Your studies at UTS Science will give you a good understanding of current scientific knowledge, practice and skills for the changing work environments.”**

**Professor Bruce Milthorpe,  
Dean, UTS Science.**

## **Q: WHAT COURSE OR MAJOR CAN I STUDY?**

Refer to Table 1 on page 7.

## **Q: WHAT ARE THE ATARS FOR COURSES?**

The ATARs listed in this booklet should only be a guide because ATARs changes each year and will be determine in January of the year you're starting university.

## **Q: HOW IS COURSE ATAR BEING CALCULATED?**

ATAR is derived based on the number of applications for a course (demand) and the number of places available for that particular course (supply).

## **Q: IF I DID NOT STUDY ANY SCIENCE OR MATHS SUBJECTS AT SCHOOL, CAN I STILL APPLY TO STUDY SCIENCE AT UTS?**

Yes, you can. Courses at UTS do not have entry prerequisites but you are expected to have the assumed knowledge of relevant subjects according to your preferred course at the start of semester. Each course has its own assumed knowledge or

recommended studies, which students are advised to have achieved before beginning the course.

UTS offers a range of assistance and support for students who do not meet the assumed knowledge requirements for their preferred course, such as Bridging Courses and Peer Assisted Study.

## **Q: I AM INTERESTED IN SCIENCE OR MATHS BUT CANNOT DECIDE WHICH MAJOR, WHICH IS THE BEST COURSE FOR ME?**

The Bachelor of Science with the flexible major would best suit this situation because you will have the flexibility to choose subjects.

## **Q: CAN I COMBINE MY COURSE WITH ANOTHER SPECIALISATION?**

In most cases you can combine your science or mathematics degree with another specialisation, making you more employable. For the combined courses listing, see page 42 to 46.

## **Q: WHAT IS THE DIFFERENCE BETWEEN A BACHELOR OF SCIENCE AND A SPECIALIST DEGREE, E.G. BACHELOR OF MEDICAL SCIENCE?**

In most cases, where the same majors are offered in both the Bachelor of Science and Specialist degree, there is no difference between the two study programs.

Example, Jane is enrolled in the Bachelor of Science in Medical Science and Derek is enrolled in the Bachelor of Medical Science – the specialist course. Both Jane and Derek could have the same study programs depending on their chosen electives. They could be attending the same lectures and doing the same practical experiments.

The only differences are in their choice of elective subjects and the award they receive when they graduate. Where Jane will receive an award in Bachelor of Science in Medical Science and Derek will receive Bachelor of Medical Science.

## **Q: WHAT IS AN ELECTIVE?**

Elective subjects are free choice subjects you choose to study. You can either choose subjects within your study area or out of your discipline.

Example, if you are studying the Bachelor of Science in Biomedical Science, you can choose the subject 'Marketing Foundations' as one of your elective subject.

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

As a student studying a science course full-time, you are expected to have about 20 hours of contact time each week in your first year, about half of this for a part-time student. You are also required to study and prepare for assessments, making it approximately 40 hours each week inclusive of lab practical and tutorials.

Where else, students studying a mathematics or statistics course full-time will attend approximately 16 hours each week on campus.

## **Q: CAN I START MY COURSE IN MID-YEAR?**

Yes, you can but not all courses are offered in mid-year. See the list at [www.science.uts.edu.au/future](http://www.science.uts.edu.au/future)

## **Q: I WANT TO DISCUSS STUDY OPTIONS WITH SOMEONE AT UTS. WHO DO I CONTACT?**

You can either ring us at 1300 275 887 or email at [science@uts.edu.au](mailto:science@uts.edu.au)



**TABLE 1: SCIENCE AND MATHEMATICS COURSES LISTINGS**

<b>UAC CODE</b>	<b>UTS Course Code</b>	<b>Course Name</b>	<b>ATAR 2015</b>
<b>Bachelor of Advanced Science (B AdvSc): Majors offered</b>			
607063	C10347	Bachelor of Advanced Science (Pre-Medicine)	95.00
607060	C10347	Bachelor of Advanced Science (Infection and Immunity)	93.00
607059	C10347	Bachelor of Advanced Science (Environmental Biotechnology)	95.00
607058	C10347	Bachelor of Advanced Science (Advanced Materials and Data Science)	95.00
<b>Bachelor of Science (BSc): Majors offered</b>			
607001	C10242	Bachelor of Science (Flexible)	74.00
607003	C10242	Bachelor of Science (Mathematics)	75.50
607003	C10242	Bachelor of Science (Statistics)	75.50
607005	C10242	Bachelor of Science (Applied Chemistry)	71.65
607007	C10242	Bachelor of Science (Nanotechnology)	71.50
607009	C10242	Bachelor of Science (Applied Physics)	71.20
607011	C10242	Bachelor of Science (Environmental Sciences)	70.70
607015	C10242	Bachelor of Science (Biotechnology)	77.45
607015	C10242	Bachelor of Science (Biomedical Science)	77.45
607015	C10242	Bachelor of Science (Medical Science)	77.45
<b>Specialist Degrees:</b>			
607070	C09078	Bachelor of Biomedical Physics	90.00
607065	C10275	Bachelor of Medicinal Chemistry	85.00
607020	C10244	Bachelor of Forensic Science in Applied Chemistry	78.10
607025	C10174	Bachelor of Forensic Biology in Biomedical Science	85.00
607033	C10223	Bachelor of Environmental Biology	71.00
607035	C10228	Bachelor of Marine Biology	72.00
607040	C10115	Bachelor of Biomedical Science	83.75
607045	C10172	Bachelor of Biotechnology	75.00
607050	C10184	Bachelor of Medical Science	88.00
607055	C10186	Bachelor of Health Science in Traditional Chinese Medicine	75.90
609040	C10155	Bachelor of Mathematics and Finance	79.65
609045	C10158	Bachelor of Mathematics and Computing	71.25
<b>Combined Degrees:</b>			
609170	C10162	Bachelor of Science, Bachelor of Business	85.75
609175	C10163	Bachelor of Medical Science, Bachelor of Business	93.15
609176	C10169	Bachelor of Biotechnology, Bachelor of Business	89.75
609220	C10157	Bachelor of Mathematics & Finance, Bachelor of Arts in International Studies	85.90
609225	C10224	Bachelor of Mathematics & Computing, Bachelor of Arts in International Studies	84.55
609250	C10243	Bachelor of Science*, Bachelor of Arts in International Studies	78.65
609255	C10167	Bachelor of Medical Science, Bachelor of Arts in International Studies	89.95
609585	C10330	Bachelor of Science*, Bachelor of Creative Intelligence and Innovation	76.40
609346	C10164	Bachelor of Health Science in Traditional Chinese Medicine, Bachelor of Arts in International Studies	75.90

Note: \*You have nine majors to choose from within the Bachelor of Science, which is applicable as a single or combined degree. For more details on course structure and subject descriptions, see pages 8 to 40 or visit [www.science.uts.edu.au/future](http://www.science.uts.edu.au/future)

# BACHELOR OF ADVANCED SCIENCE **OVERVIEW**

## HOW DOES IT WORK?

The Bachelor of Advanced Science (BAdvSc) combines inquiry learning and research immersion. You will learn theory through real time application which is a distinctive approach to UTS Science that distinguishes this degree from others.

You will engage in a number of research projects based in your chosen major and work with researchers and learn science “on the job”. You will also be actively mentored in research teams solving real-world issues.

Four majors are offered in this degree which are Advanced Material and Data Science, Environmental Biotechnology, Infection and Immunity and Pre-Medicine.

## BACHELOR OF ADVANCED SCIENCE IN **ADVANCED MATERIALS & DATA SCIENCE (NEW)**

### KEY INFORMATION

**2015 ATAR:** 95.00  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607058  
**UTS Course Code:** C10347

**Assumed Knowledge:** Year 12 Mathematics, two units of Science and any two units of English

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

### COURSE DESCRIPTION

Modern civilisation depends upon natural and man-made materials such as metals, textiles and materials for electronic components and devices. The next generation of advanced materials will be key to solving many of society’s needs, such as clean energy from solar cells, water purification, materials that support health and security technologies to name a few.

This course give you essential skills and knowledge such as the properties and development of materials, how to measure and test properties using various experimental techniques, and how to design new materials using computer simulations. You will also learn and network with researchers in advanced materials and new developing areas such as data science.

### CAREER OPTIONS INCLUDE

Material scientist or researcher, product developer, inventor and many more as this major leads to a variety of careers in either conventional science based within government, defence and commercial laboratories or new innovative careers in financial modeling, management and other non-technical fields where data science skills combine the science of applying and analysing data trends to bring about business improvement.

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

### COURSE STRUCTURE

Year 1	Year 2	Year 3
Foundation of Physics	Surface Processes	Computational Physics
Mathematical Modelling for Science	Mathematics for Physical Science	Energy Science and Technology
Chemistry 1	Advanced Research Project 1	Advanced Research Project 3
Research Methods 1	Data Science 1	Data Science 2
Physics in Action	Quantum Physics	Solid-state Science and Nanodevices
Statistics and Mathematics for Science	Advanced Research Project 2	Advanced Research Project 4
Optics	Elective x 2	Elective x 2
Research Methods 2		

# BACHELOR OF ADVANCED SCIENCE IN ENVIRONMENTAL BIOTECHNOLOGY (NEW)

## KEY INFORMATION

**2015 ATAR:** 95.00  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607059  
**UTS COURSE Code:** C10347

### Assumed Knowledge:

Year 12 Mathematics, two units of Science and any two units of English

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

## COURSE DESCRIPTION

Humans are in a constant battle with microbes, both medically and environmentally.

This course focuses on the understanding how to manage microbes that impact on the environments upon which we depend including bioremediation, mine waste management, as well as using microbes to solve problems that can lead to commercial products such as biofuels, pharmaceuticals, nutraceuticals or agricultural feed stocks.

The diversity of microbes with novel traits is immense; we need a new 'ensemble' of scientist with a specialist background to bio-prospect these habitats and identify which microbes can be used to solve our environmental challenges.

This course focuses on industrial applications of environmental biotechnology. You will develop advanced skills in bio-informatics, omics, microbial ecology and the fundamental sciences to prepare you for an exciting career in the ever expanding field of biotechnology, having a specific focus on environmental applications and solutions to our changing globe.

## CAREER OPTIONS

This course offers a wide range of options including industrial biotechnology for the energy sector such as biofuel, agricultural sector such as feedstock, and environmental management such as phyto-remediation.

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

## COURSE STRUCTURE

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



# BACHELOR OF ADVANCED SCIENCE IN PRE-MEDICINE (NEW)

## KEY INFORMATION

**2015 ATAR:** 95.00  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607063  
**UTS COURSE Code:** C10347

**Assumed Knowledge:**  
 Year 12 Mathematics, two units of  
 Science and any two units of English  
**Bonus Points:** Available, see page 49  
**How to Apply:** See page 49

## COURSE DESCRIPTION

The aim of this course is to prepare you for postgraduate medicine and also to equip you with the knowledge and learning for a number of health professions such as dentistry, pharmacy, etc.

It has a stronger focus on coursework to best prepare graduates for future health professional careers in comparison with other majors within the UTS Bachelor of Advanced Science.

You will learn the human anatomy, function and disease processes at the cellular and organ level. You will also be introduced to practices and theory that underlie both medical research and the health professions.

## CAREER OPTIONS INCLUDE

You can work in one of the many different health-related professions such as pharmacy, physiotherapy and other primary contact care professions or related professions including health policy, medical, sales and technical support of medical devices, the pharmaceutical and therapeutic goods industry.

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

## COURSE STRUCTURE

Year 1	Year 2	Year 3
Chemistry 1 Cell Biology and Genetics General Microbiology Research Methods 1 Chemistry 2 (Advanced) Physical Aspect of Nature Human Anatomy and Physiology Research Methods 2	Histology Physiological Systems Metabolic Biochemistry Human Pathophysiology Human Anatomy 2 Introductory Haematology and Immunology Elective x 2	Pharmacology 1 Neuroscience Professional Practice Pharmacology 2 Medical and Applied Physiology Human Anatomy 3 Elective x 2

# BACHELOR OF ADVANCED SCIENCE IN INFECTION AND IMMUNITY (NEW)

## KEY INFORMATION

**2015 ATAR:** 93.00  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607060  
**UTS COURSE Code:** C10347

### Assumed Knowledge:

Year 12 Mathematics, two units of Science and any two units of English

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

## COURSE DESCRIPTION

One of the biggest global threats to human health and the environment is antibiotic resistance, which is the resistance of micro-organisms to drugs that are used to treat serious infections, rendering these drugs ineffective.

This course gives you skills and expertise to enable you to participate in the effort to address this urgent health problem.

You will learn how micro-organisms cause infections, how the host prevents and responds to infection, and understand processes both in the microbe and the host that can be targeted in clinical applications for the diagnosis, treatment and protection against microbial infection.

You will gain advanced experimental, analytical and computational skills in areas such as drug discovery, development of vaccines, drug synthesis, human immunology and antibiotic resistance. You will explore innovative ways of how to tackle the antibiotic resistance problem.

## CAREER OPTIONS INCLUDE

This course offers a gateway to multiple career options, including biotechnology, medicine, pharmaceuticals, vaccines, patent law and public health. A research option is also available via the Honours program followed by postgraduate study.

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

## COURSE STRUCTURE

Year 1	Year 2	Year 3
Chemistry 1 Physical Aspects of Nature Cell Biology and Genetics Research Methods 1 Molecular Biology 1 Chemistry 2 (Advanced) Human Anatomy and Physiology Research Methods 2	General Microbiology Pharmacology 1 Advanced Research Project 1 Drug Discovery Introductory Haematology and Immunology Advanced Research Project 2 Elective x 2	Advanced Research Project 3 Advanced Research Project 4 Elective x 2 <b>Select two of the following:</b> > Advanced Immunology > Clinical Bacteriology > Virology <b>Select two of the following:</b> > Bacterial Pathogenesis > Parasitology > Proteomics > Microscopy and Cytometry > Pharmacology 2

# RECOGNISED FOR TRANSFORMING LEARNING



## PROFESSOR LES KIRKUP

Professor Kirkup recently won the 2014 Australian Institute of Physics medal as recognition of his leadership in physics education, particularly in inquiry-oriented learning in laboratories and the analysis and presentation of experimental data which is the outcome of 20 years' work.

UTS is the first university in Australia to transform its laboratory teaching, changing it from very recipe-like experiments where students follow instructions to experiments, to where students have the responsibility to design and inquire.

This change in philosophy required re-conceptualisation of laboratory skills, rethinking the way students work and how resources are used. It is about choosing and deciding what particular capacity we want to develop in students, and at UTS Science we want our students to develop inquiry skills, communication skills and teamwork. It is about developing life-long capacities and giving students a sense of what it is to be a scientist. Scientist don't follow recipes, otherwise they'd get to the same conclusions as everyone else.

**Courses related to this news:** Any science course but specifically applied physics, nanotechnology, biomedical physics and advanced materials.



# BACHELOR OF SCIENCE OVERVIEW

## KEY INFORMATION

**2015 ATAR:** See majors, pages 14-35  
**Duration:** 3 years (full time)  
 6 years (part time)  
**Location:** City campus

**Combine this course with:**  
 Business, Engineering, International Studies and Law – see page 34

**Assumed Knowledge:**  
 Mathematics; any two units of English. At least two units of science relevant to the individual discipline chosen is recommended. Maths Ext 1 is recommended for those majoring in mathematics or statistics.

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

**Professional Recognition:** See information on relevant majors

## HOW DOES IT WORK?

The Bachelor of Science (BSc) is a flexible course designed to give you a solid foundation of scientific knowledge and practice, while allowing you to specialise in your area of interest.

In your first year, you'll study core subjects of your chosen foundation stream. At the end of the first year, you can either continue or change your chosen major or area of specialisation within the foundation stream.

You can also opt to study a range of subjects by choosing the flexible major, and graduate with a Bachelor of Science award. This allows you to follow your interests and aspirations, while keeping your career options open.

**Flexible major:** You'll need to choose one of the three first-year foundation streams. Upon completion of the foundation streams, you may choose any of the specific majors that articulate with your chosen foundation stream or you may choose a flexible mix of subjects that matches your interests and ambitions. See page 22 for more information.

## CAN YOU COMBINE THE BACHELOR OF SCIENCE WITH ANOTHER COURSE?

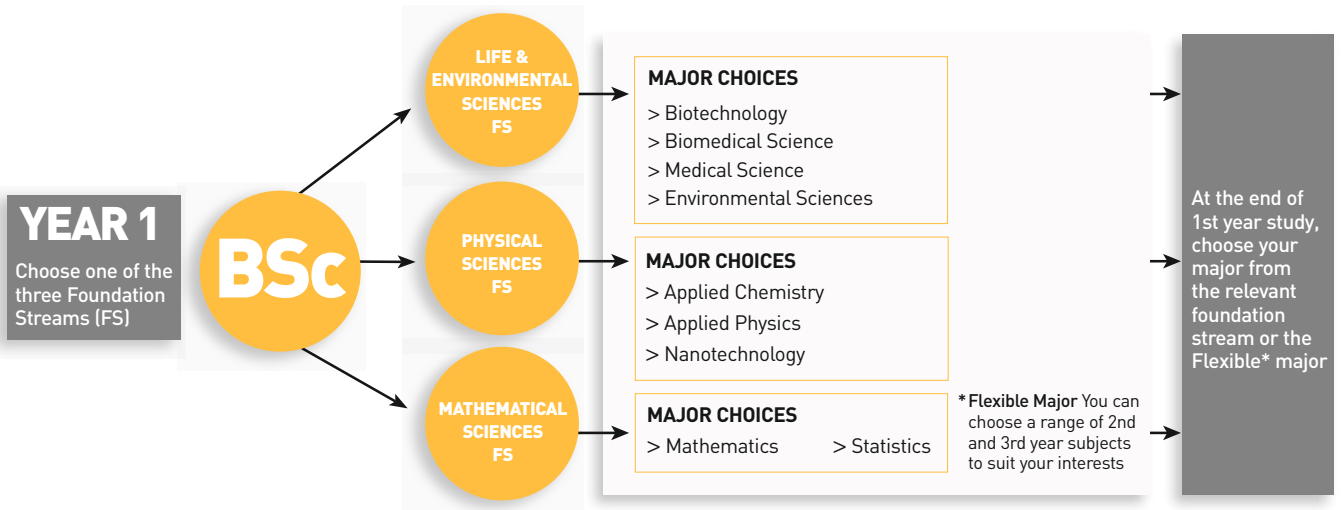
Yes, you can combine the Bachelor of Science, with other specializations such as business, international studies, law and engineering.

See page 42 for combined courses listing and for more career options, visit [www.science.uts.edu.au/future](http://www.science.uts.edu.au/future)

## WHAT ARE THE FOUNDATION STREAMS? WHAT MAJORS DO THEY LEAD INTO?

There are 3 foundation streams that lead into 9 majors.

FOUNDATION STREAMS	MAJORS
Life and Environmental Sciences	Biotechnology, Biomedical Science, Medical Science, Environmental Sciences
Physical Sciences	Applied Chemistry, Applied Physics, Nanotechnology
Mathematical Sciences	Mathematics, Statistics



# BACHELOR OF SCIENCE (FLEXIBLE)

## KEY INFORMATION

<b>2015 ATAR:</b>	74.00
<b>Duration:</b>	3 years (full-time) 6 years (part-time)
<b>Location:</b>	City campus
<b>UAC Code:</b>	607001
<b>UTS Course Code:</b>	C10242

**Assumed Knowledge:** Mathematics; any two units of English. At least two units of science relevant to the individual discipline chosen is recommended.

Maths Ext 1 is recommended for those majoring in mathematics or statistics.

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

## COURSE DESCRIPTION

This is our most flexible course that enables you to study core science and mathematics subjects while specialising in your areas of interest and aspiration. In the first year, you'll study core subjects of your chosen foundation stream.

At the end of the first year, you can either continue within the foundation stream or choose not to follow a major and opt to study a mix of subjects of your interests, keeping your career options open.

This course is best suited if you're undecided over which major to follow, because it allows you to study a broad range of subjects in the first year before deciding on a major in the second year.

It also enables you to familiarise yourself with different areas of science and maths, and discuss your interests and options with lecturers.

You can also include sub-majors or combine this course with other specialisations from other UTS faculties such as business, international studies, law and engineering. For course listing, see pages 42 to 46.

## CAREER OPTIONS INCLUDE

Graduates will have versatile transferable skills that are recognised in almost any industry. However, your career paths will depend largely on your chosen subjects.

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

## COURSE STRUCTURE

Year 1	Year 2	Year 3
<b>Mathematical Sciences Stream</b>		
Introduction to Quantitative Management Introduction to Linear Dynamical Systems Introduction to Data Analysis Choose one subject from Foundation Choice A Introduction to Sample Surveys Introduction to Mathematical Analysis and Modelling Probability and Random Variables Choose one subject from Foundation Choice B	Choose six subjects from <b>Level 2 Subject Choices (Physical Sciences)</b> <a href="http://handbook.uts.edu.au/directory/cbk90606.html">http://handbook.uts.edu.au/directory/cbk90606.html</a> Elective x 2	Choose six subjects from <b>Level 3 Subject Choices (Physical Sciences)</b> <a href="http://handbook.uts.edu.au/directory/cbk90607.html">http://handbook.uts.edu.au/directory/cbk90607.html</a> Elective x 2

## COURSE STRUCTURE (CONTINUED)

Year 1	Year 2	Year 3
<b>Chemistry Stream</b>		
Principles of Scientific Practice Chemistry 1 Mathematical Modelling for Science Foundations of Physics Chemistry 2 Statistics and Mathematics for Science Physics in Action <b>Select one from the following:</b> > Cell Biology and Genetics > Human Anatomy and Physiology > Introduction to Materials	Choose six subjects from <b>Level 2 Subject Choices (Physical Sciences)</b> <a href="http://handbook.uts.edu.au/directory/cbk90606.html">http://handbook.uts.edu.au/directory/cbk90606.html</a> Elective x 2	Choose six subjects from <b>Level 3 Subject Choices (Physical Sciences)</b> <a href="http://handbook.uts.edu.au/directory/cbk90607.html">http://handbook.uts.edu.au/directory/cbk90607.html</a> Elective x 2
<b>Physics Stream</b>		
Mathematical Modelling for Science Chemistry 1 Foundations of Physics Principles of Scientific Practice Statistics and Mathematics for Science Chemistry 2 Physics in Action Introduction to Materials	Choose six subjects from <b>Level 2 Subject Choices (Physical Sciences)</b> <a href="http://handbook.uts.edu.au/directory/cbk90606.html">http://handbook.uts.edu.au/directory/cbk90606.html</a> Elective x 2	Choose six subjects from <b>Level 3 Subject Choices (Physical Sciences)</b> <a href="http://handbook.uts.edu.au/directory/cbk90607.html">http://handbook.uts.edu.au/directory/cbk90607.html</a> Elective x 2
<b>Environmental Stream</b>		
Principles of Scientific Practice Chemistry 1 The Biosphere Statistical Design and Analysis Biocomplexity Cell Biology and Genetics Physical Aspects of Nature Environmental Chemistry	Choose six subjects from <b>Level 2 Subject Choices (Life and Environmental Sciences)</b> <a href="http://handbook.uts.edu.au/directory/cbk90598.html">http://handbook.uts.edu.au/directory/cbk90598.html</a> Elective x 2	Choose six subjects from <b>Level 3 Subject Choices (Life and Environmental Sciences)</b> <a href="http://handbook.uts.edu.au/directory/cbk90599.html">http://handbook.uts.edu.au/directory/cbk90599.html</a> Elective x 2
<b>Life Sciences Stream</b>		
Cell Biology and Genetics Chemistry 1 Principles of Scientific Practice Statistical Design and Analysis Chemistry 2 Physical Aspects of Nature Biocomplexity Human Anatomy and Physiology	Choose six subjects from <b>Level 2 Subject Choices (Life and Environmental Sciences)</b> <a href="http://handbook.uts.edu.au/directory/cbk90598.html">http://handbook.uts.edu.au/directory/cbk90598.html</a> Elective x 2	Choose six subjects from <b>Level 3 Subject Choices (Life and Environmental Sciences)</b> <a href="http://handbook.uts.edu.au/directory/cbk90599.html">http://handbook.uts.edu.au/directory/cbk90599.html</a> Elective x 2



# BACHELOR OF SCIENCE (APPLIED PHYSICS)

## KEY INFORMATION

**2015 ATAR:** 71.20  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607009  
**UTS COURSE Code:** C10242

### Recommended Year 12 Subjects:

Maths Extension 1, Physics, Chemistry, Maths, 2 units of English, 2 units of Science

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

### Professional recognition and accreditation:

Australian Institute of Physics (AIP)

## COURSE DESCRIPTION

Physics challenges the imagination and today's physicists are turning their talents to some of the great challenges facing society. Energy efficient lighting, climate change studies and medical technologies are all benefiting from the contributions of physicists.

You'll learn about the interactions of energy and matter, precision measurement techniques, laws of nature and their behaviour, and how new developments in physics are helping to expand the frontiers of technology. Physics at UTS combines theory and practice with lots of opportunities for practical skills and laboratory experience.

You'll gain valuable critical thinking skills and learn how to apply practical problem-solving skills in a hands-on environment. You'll discover how applied research becomes new technology.

## CAREER OPTIONS INCLUDE

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, exploration and consulting, medical physics diagnoses, energy and sustainable research.

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

## COURSE STRUCTURE

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

# BACHELOR OF SCIENCE (NANOTECHNOLOGY)

## KEY INFORMATION

**2015 ATAR:** 71.50  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607007  
**UTS COURSE Code:** C10242

### Recommended Year 12 Subjects:

Maths Extension 1, Physics, Chemistry, Maths, 2 units of English, 2 units of Science

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

### Professional recognition and accreditation:

Australian Institute of Physics (AIP)

## COURSE DESCRIPTION

Nanotechnology is about understanding how the world works at the level of atoms and molecules, and applying that knowledge to create innovative solutions. Nanotechnology products on sale today include; fabrics that are completely stain proof, self-cleaning surfaces, energy-efficient window coatings, clear-gel sunscreens and microchips.

Targeted drug-delivery systems, smart materials that respond to their surroundings, DNA computers and paper-thin and flexible displays are only a few nanotechnologies soon to be released.

In this major, you'll be exposed to a multi-discipline course that develops your analytical and critical thinking skills, and also learn how to apply practical problem-solving skills.

Hands-on training in the tools of nanotechnology is a core component of this course.

The innovation and commercialisation process is examined to give graduates an appreciation of how new technologies may be brought to the market place.

## CAREER OPTIONS INCLUDE

Material scientist, polymer scientist, composite technologist, investment advisor, product development and commercialisation, nanotechnologist, science teacher, academia, technical officer, imaging specialist, research associate or assistant, drug deliverance researcher, nanolithography, platform project officer.

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

## COURSE STRUCTURE

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

# BACHELOR OF BIOMEDICAL PHYSICS (NEW)

## KEY INFORMATION

**2015 ATAR:** 90.00  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607070  
**UTS COURSE Code:** C10346

**Recommended Year 12 Subjects:**  
 Year 12 Mathematics, two units of Science and any two units of English  
**Bonus Points:** Available, see page 49  
**How to Apply:** See page 49

## COURSE DESCRIPTION

Some of the most rewarding yet challenging applications of physics are in the area of biomedical physics. There are a broad range of applications including radiation oncology, medical imaging and radiation safety to name a few.

Knowledge of biomedical physics can be applied to instrument development from MRIs (Magnetic Resonance Imaging) to simple glucose monitors or therapeutic agents based on nanoparticles.

This course gives you skills and expertise that will equip you to participate in this exciting and rapidly growing area of activity found at the interface between physics and biomedicine.

You will gain advanced experimental, analytical and computational skills as well as an understanding of how the body works at a cellular and organ level.

You will explore the biomedical applications of physics, ranging from the use of nanoparticles as diagnostic and therapeutic agents to medical imaging and diagnostic instrumentation.

## CAREER OPTIONS INCLUDE

This course offers a gateway to multiple career options, including imaging technology and the medical instrumentation industry. It will also provide a pathway to postgraduate studies in medical physics and medicine.

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

## COURSE STRUCTURE

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

# BACHELOR OF MEDICINAL CHEMISTRY (NEW)

## KEY INFORMATION

**2015 ATAR:** 85.00  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607065  
**UTS COURSE Code:** C10275

### Assumed Knowledge:

Year 12 Mathematics, two units of Science and any two units of English

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

**Professional recognition and accreditation:** Royal Australian Chemical Institute

## COURSE DESCRIPTION

The aim of this course is to equip you with skills to undertake the design, discovery and development of new drugs. The course is a research inspired, trans-disciplinary degree located at the intersection of chemistry, biology and pharmacology.

You will develop a solid foundation in chemistry, maths and biology which will underpin your studies, and as you progress through your degree, you will explore pharmacology and drug synthesis strategies.

You will gain necessary skills to prepare you for a career as a medicinal chemist with access to sophisticated instrumentation.

## CAREER OPTIONS INCLUDE

You will be at the forefront of drug discovery from concept to delivery. Your highly developed practical skills will differentiate you from other graduates, allowing you to work in areas of drug discovery and development including the creation of new synthetic drug compounds.

You can choose to work in a range of industries such as pharmaceutical science and biotechnology where you will have the opportunity to interact with multi-disciplinary teams involving pharmacologists, toxicologists, analytical chemists, microbiologists, and bio-pharmacists.

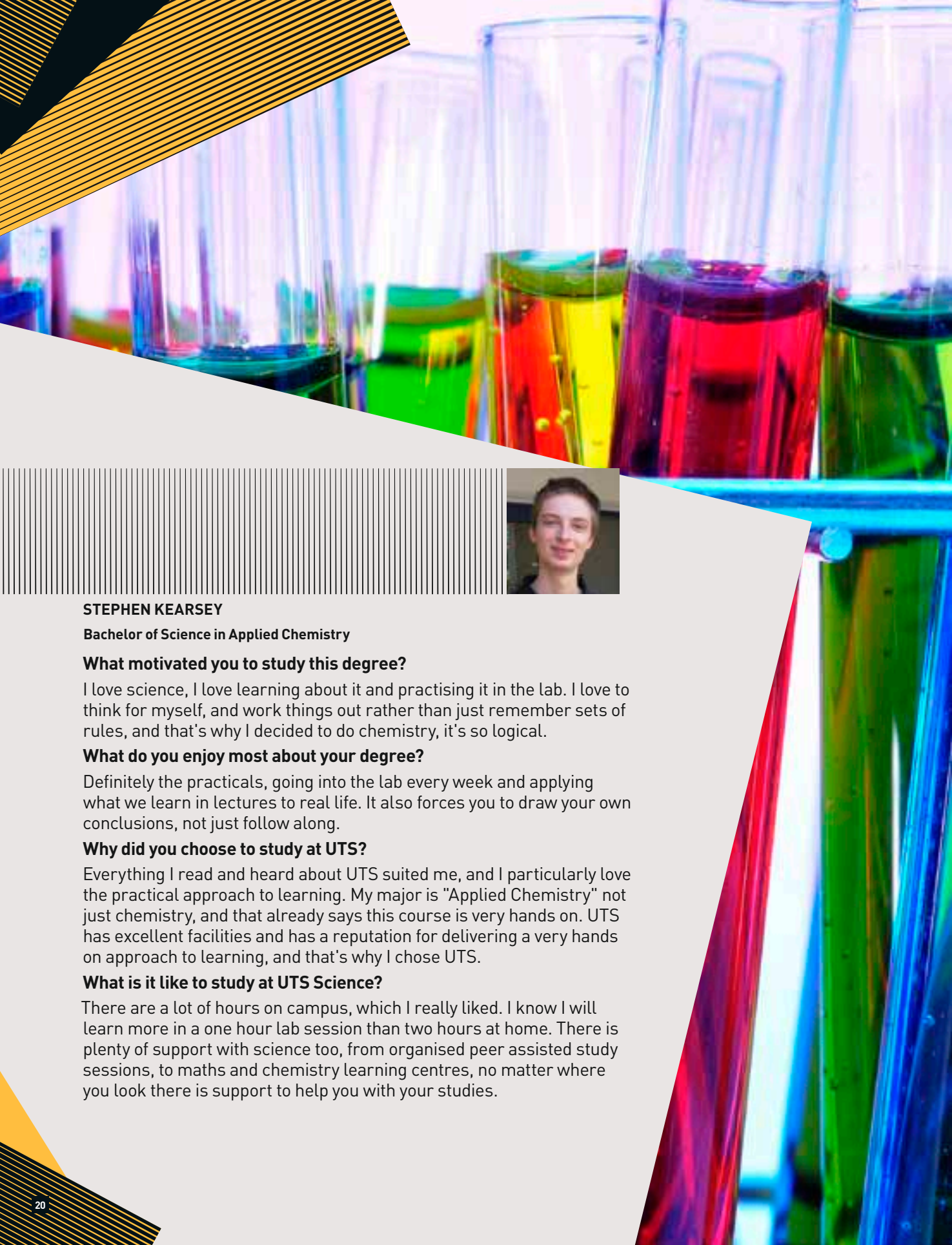
The majority of jobs are with pharmaceutical companies, biotechnology start-ups, clinical trials management or government regulatory authorities.

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

## COURSE STRUCTURE

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





## **STEPHEN KEARSEY**

**Bachelor of Science in Applied Chemistry**

### **What motivated you to study this degree?**

I love science, I love learning about it and practising it in the lab. I love to think for myself, and work things out rather than just remember sets of rules, and that's why I decided to do chemistry, it's so logical.

### **What do you enjoy most about your degree?**

Definitely the practicals, going into the lab every week and applying what we learn in lectures to real life. It also forces you to draw your own conclusions, not just follow along.

### **Why did you choose to study at UTS?**

Everything I read and heard about UTS suited me, and I particularly love the practical approach to learning. My major is "Applied Chemistry" not just chemistry, and that already says this course is very hands on. UTS has excellent facilities and has a reputation for delivering a very hands on approach to learning, and that's why I chose UTS.

### **What is it like to study at UTS Science?**

There are a lot of hours on campus, which I really liked. I know I will learn more in a one hour lab session than two hours at home. There is plenty of support with science too, from organised peer assisted study sessions, to maths and chemistry learning centres, no matter where you look there is support to help you with your studies.

# BACHELOR OF SCIENCE (APPLIED CHEMISTRY)

## KEY INFORMATION

**2015 ATAR:** 71.65  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607005  
**UTS COURSE Code:** C10242

### Recommended Year 12 Subjects:

Maths Extension 1, Physics, Chemistry, Maths, 2 units of English, 2 units of Science

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

### Professional recognition and accreditation:

Royal Australian Chemical Institute (RACI)

## COURSE DESCRIPTION

Chemistry is the science of matter, and the basis of most of today's scientific advances. With its dynamic combination of practice and theory, this major gives you insight into how chemical substances work and why. The core subjects will develop your advanced problem-solving skills, and the electives will allow you to learn the basic concepts, vocabulary and patterns of thought in a second discipline.

You'll have access to high technology instruments and laboratory facilities. UTS has strong links with major employers, such as ANSTO and CSIRO, which offer students valuable networking opportunities.

## CAREER OPTIONS INCLUDE

Chemist, food and wine producer, laboratory technician, science teacher, QC analyst (pharmaceutical), process development technologist, aquatic chemist, chemical oceanographer, analytical and clinical chemist, development chemist, environmental chemist, geochemist, organic chemist, research chemist, regulatory toxicologist, molecular scientist, organic analytical chemist.

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

## COURSE STRUCTURE

Year 1	Year 2	Year 3
Mathematical Modelling for Science Chemistry 1 Foundations of Physics <b>Select one of the following:</b> > Cell Biology and Genetics > Introduction to Materials > Human Anatomy and Physiology Chemistry 2 Statistics and Mathematics for Science Introduction to Materials Physics in Action Principles of Scientific Practice	Organic Chemistry 1 Skills for the Professional Chemist Physical Chemistry 1 Organic Chemistry 2 Inorganic Chemistry 1 Spectroscopy and Structure Elective x 2	Analytical Chemistry 2 Inorganic Chemistry 2 Polymer Science Analytical Chemistry 3 Physical Chemistry 2 Surface Processes Elective x 2



**STEPHANIE TAN**

**Bachelor of Forensic Science in Applied Chemistry**

**What motivated you to study this degree?**

I studied chemistry in year 12 and was really keen to pursue either forensics or chemistry, and UTS offered both – in one degree, which was a big plus.

**What do you enjoy most about your degree?**

Learning about the different interesting things that the degree offers and covers and what should be expected or encountered when pursuing this career path.

**Why did you choose to study at UTS?**

UTS offered the combination of chemistry and forensic science, which I was looking for in a degree.

**What is it like to study at UTS Science?**

With most science degrees, a lot of time is needed to be put in to complete a science degree but doing so enables us to learn a lot theoretically and practically. Lecturers are also approachable and accessible.

# BACHELOR OF FORENSIC SCIENCE IN APPLIED CHEMISTRY

## KEY INFORMATION

**2015 ATAR:** 78.10  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607020  
**UTS COURSE Code:** C10244

**Recommended Year 12 Subjects:**  
 Maths Extension 1, Chemistry, Physics,  
 Maths, 2 units of English, 2 units of  
 Science

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

**Professional recognition and accreditation:** Australian and  
 New Zealand Forensic Science Society  
 (ANZFSS), Royal Australian Chemical  
 Institute (RACI)

## COURSE DESCRIPTION

This course not only gives you insight into how science can solve and prevent crime and terrorism, but also why chemistry is the main underpinning discipline of the forensic scientist.

You'll have access to high technology instruments and laboratory facilities many of which are found in commercial operational forensic laboratories, thus developing your advanced analytical, problem-solving and communication skills.

You'll graduate with a professional qualification in both forensic science and applied chemistry, highly adaptable and practical scientific skills, and a thorough theoretical grounding in both specialisations.

## CAREER OPTIONS INCLUDE

Scene of crime officer, forensic trace evidence specialist, laboratory manager, analytical chemist, science teacher, lecturer or academic, clinical toxicologist, forensic toxicologist, regulatory toxicologist, forensic entomologist, forensic scientist, team leader in investigations, forensic chemist, forensic anthropology, laboratory service management/operations, research associate, analytical technician.

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

## COURSE STRUCTURE

### Year 1

Principles of Scientific Practice  
 Mathematical Modelling for Science  
 Chemistry 1  
 Foundations of Physics  
 Statistics and Mathematics for Science  
 Chemistry 2  
 Principles of Forensic Science

**Select one of the following:**

- > Introduction to Materials
- > Physics in Action
- > Human Anatomy and Physiology

### Year 2

Organic Chemistry 1  
 Skills for the Professional Chemist  
 Physical Chemistry 1  
 Crime Scene Investigation  
 Organic Chemistry 2  
 Inorganic Chemistry 1  
 Spectroscopy and Structure  
 Physical Evidence

### Year 3

Analytical Chemistry 2  
 Chemical Criminalistics  
 Forensic Toxicology  
 Physical Chemistry 2  
 Analytical Chemistry 3  
 Chemistry and Pharmacology of  
 Recreational Drugs  
 Fire and Explosion Investigation

**Select one of the following:**

- > Forensic Statistics
- > Inorganic Chemistry 2
- > Polymer Science



# INSPIRATIONAL ALUMNI



## **DR SIMON WALSH**

**Chief Scientist (Forensics), Australian Federal Police  
Doctor of Philosophy in Science (Forensics), UTS**

Dr Simon Walsh was awarded the 2014 UTS Chancellor's Award for Excellence and also the UTS Alumni Award for Excellence (Faculty of Science) in recognition of his work and contribution to society.

Dr Walsh is a passionate longstanding contributor to forensic science research and education. He is a UTS graduate obtaining his Doctor of Philosophy in Forensic Science in 2009. He also developed Australia's first bachelor degree in forensic biology at UTS and was awarded the NSW Young Tall Poppy Award in 2005.

Now as the Chief Scientist, Forensics for the Australian Federal Police (AFP), Dr Walsh is widely regarded as one of the nation's foremost forensic authorities and has led reforms and initiatives that significantly expand capabilities in the field. In his capacity as the National Disaster Victim Identification (DVI) Commander with the AFP, his leadership and expertise have been crucial to the success of numerous high-profile DVI operations, amongst them the Victorian bushfires in 2009, the Christmas Island refugee boat tragedies in 2010 and 2012, and the Christchurch earthquake in New Zealand in 2011, which brought comfort to countless grieving families, allowing them to begin the process of laying their loved ones to rest.

The horror of the Malaysian Airlines Flight MH17 tragedy in July 2014 triggered his next deployment. Leading a team of Australian specialists to the war-ravaged field in the Ukraine, Dr Walsh began the grizzly process of recovering and identifying the victims' remains under Operation Bring Them Home.

**Courses related to this news: Forensic science, forensic biology.**

# BACHELOR OF FORENSIC BIOLOGY IN BIOMEDICAL SCIENCE

## KEY INFORMATION

**2015 ATAR:** 85.00  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607025  
**UTS COURSE Code:** C10174

**Recommended Year 12 Subjects:**  
 Maths Extension 1, Chemistry, Maths,  
 2 units of English, 2 units of Science

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

**Professional recognition:** Australian and  
 New Zealand Forensic Science Society  
 (ANZFSS)

## COURSE DESCRIPTION

You'll gain expertise in both forensic biology and biomedical science. You'll also address how the human body works at the cellular level, and apply this knowledge to forensic investigations. You'll obtain hands-on experience and develop your critical thinking and problem-solving skills in the field and lab.

You'll learn how crimes are solved through forensic investigations of human evidence (DNA, bodily fluids and tissues), collection and handling of evidence, crime scene investigation and legal issues. You'll have access to one of the best, world-class science laboratories in Australia, and will be in contact with leading forensic scientists.

UTS also has strong links with federal and state police services and government forensic laboratories, giving you the opportunity to network with future employers.

## CAREER OPTIONS INCLUDE

Scene of crime officer, DNA profiler, forensic laboratory scientists, biomedical scientist, toxicology scientist, expert witness. Graduates can find employment in forensic labs for federal and state police, DNA testing labs and medical firms.

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

## COURSE STRUCTURE

Year 1	Year 2	Year 3
Chemistry 1 Cell Biology and Genetics Principles of Scientific Practice Statistical Design and Analysis Human Anatomy and Physiology Chemistry 2 Principles of Forensic Science <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>&gt; Physical Aspects of Nature</li> <li>&gt; Biocomplexity</li> </ul>	Metabolic Biochemistry General Microbiology Histology Forensic Statistics Molecular Biology 1 Analytical Biochemistry Anatomical Pathology <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>&gt; Epidemiology and Public Health Microbiology</li> <li>&gt; Introductory Haematology and Immunology</li> </ul>	DNA Profiling Investigation of Human Remains Crime Scene Investigation Complex Forensic Cases (Biology) Complex Forensic Cases (Law for Biology) <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>&gt; Molecular Biology 2</li> <li>&gt; Clinical Bacteriology</li> <li>&gt; Medical and Diagnostic Biochemistry</li> <li>&gt; Advanced Haematology</li> <li>&gt; Advanced Immunology</li> </ul> <b>Select two of the following:</b> <ul style="list-style-type: none"> <li>&gt; Transfusion Science</li> <li>&gt; Epidemiology and Public Health Microbiology</li> <li>&gt; Biochemistry, Genes and Disease</li> <li>&gt; Parasitology</li> </ul>

# BACHELOR OF SCIENCE (BIOMEDICAL SCIENCE)

## BACHELOR OF BIOMEDICAL SCIENCE

### KEY INFORMATION

#### Bachelor of Science (Biomedical Science)

**2015 ATAR:** 77.45

**UAC Code:** 607015

**UTS COURSE Code:** C10242

#### Bachelor of Biomedical Science (specialist course)

**2015 ATAR:** 83.75

**UAC Code:** 607040

**UTS COURSE Code:** C10115

**Duration:** 3 years (full-time)  
6 years (part-time)

**Location:** City campus

#### Recommended Year 12 Subjects:

Maths Extension 1, Chemistry, Maths, 2 units of English, 2 units of Science

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

#### Professional recognition and accreditation:

Australian Institute of Medical Scientists (AIMS)

### COURSE DESCRIPTION

You'll learn in-depth how the body works at the cellular level, what causes disease and the techniques of laboratory diagnosis of disease, including the expanding area of molecular-based diagnostic techniques. You'll obtain knowledge and lab skills required to participate in research aimed at the prevention or treatment of disease.

This course is the only AIMS accredited degree in Sydney. It provides strong professional and industry focus with extensive theoretical knowledge and advanced laboratory skills. You'll gain a solid background in the biological and medical sciences practical experimentation.

It is also an excellent preparation for entry into postgraduate degrees, such as medicine, dentistry and pharmacy.

### CAREER OPTIONS INCLUDE

Medical lab manager, cytologist, biochemist, microbiologist, research associate, cancer researcher, gene therapist, embryologist, infectious disease researcher, diagnostic technician, biologist, oceanographer, geneticist, pathologist, medical practitioner

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

### COURSE STRUCTURE

Year 1	Year 2	Year 3
Chemistry 1 Principles of Scientific Practice Cell Biology and Genetics Statistical Design and Analysis Chemistry 2 Biocomplexity Human Anatomy and Physiology Physical Aspects of Nature	General Microbiology Metabolic Biochemistry Histology Molecular Biology 1 <b>Select two of the following:</b> <ul style="list-style-type: none"> <li>&gt; Analytical Biochemistry</li> <li>&gt; Epidemiology and Public Health Microbiology</li> <li>&gt; Introductory Haematology and Immunology</li> </ul> Electives x 2	Anatomical Pathology <b>Select three of the following:</b> <ul style="list-style-type: none"> <li>&gt; Molecular Biology 2</li> <li>&gt; Clinical Bacteriology</li> <li>&gt; Medical and Diagnostic Biochemistry</li> <li>&gt; Advanced Haematology</li> <li>&gt; Advanced Immunology</li> </ul> <b>Select two of the following:</b> <ul style="list-style-type: none"> <li>&gt; Transfusion Science</li> <li>&gt; Biochemistry, Genes and Disease</li> <li>&gt; Parasitology</li> </ul> Electives x 2

# BACHELOR OF SCIENCE (BIOTECHNOLOGY)

## BACHELOR OF BIOTECHNOLOGY

### KEY INFORMATION

#### Bachelor of Science (Biotechnology)

**2015 ATAR:** 77.45

**UAC Code:** 607015

**UTS COURSE Code:** C10242

#### Bachelor of Biotechnology (specialist course)

**2015 ATAR:** 75.00

**UAC Code:** 607045

**UTS COURSE Code:** C10172

**Duration:** 3 years (full-time)  
6 years (part-time)

**Location:** City campus

#### Recommended Year 12 Subjects:

Maths Extension 1, Chemistry, Maths,  
2 units of English, 2 units of Science

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

**Professional recognition and accreditation:** Australian Biotechnology Association

### COURSE DESCRIPTION

You'll study the biological processes of living organisms and learn the skills needed to naturally manipulate these processes in the development of new medicine, food and organic substances.

Biotechnology professionals use the above techniques to create new medicines, foods and organic substances by applying gene technology and other natural processes. The broad range of electives allows you to tailor the course to suit your interests.

This degree also covers ethical issues, hazard management and intellectual property issues.

### CAREER OPTIONS INCLUDE

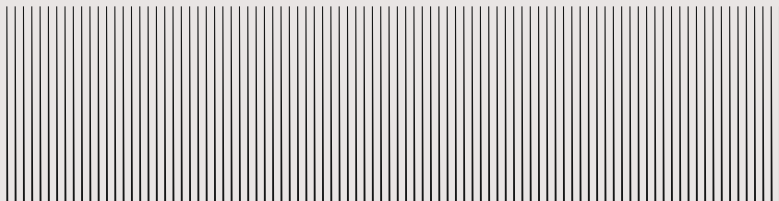
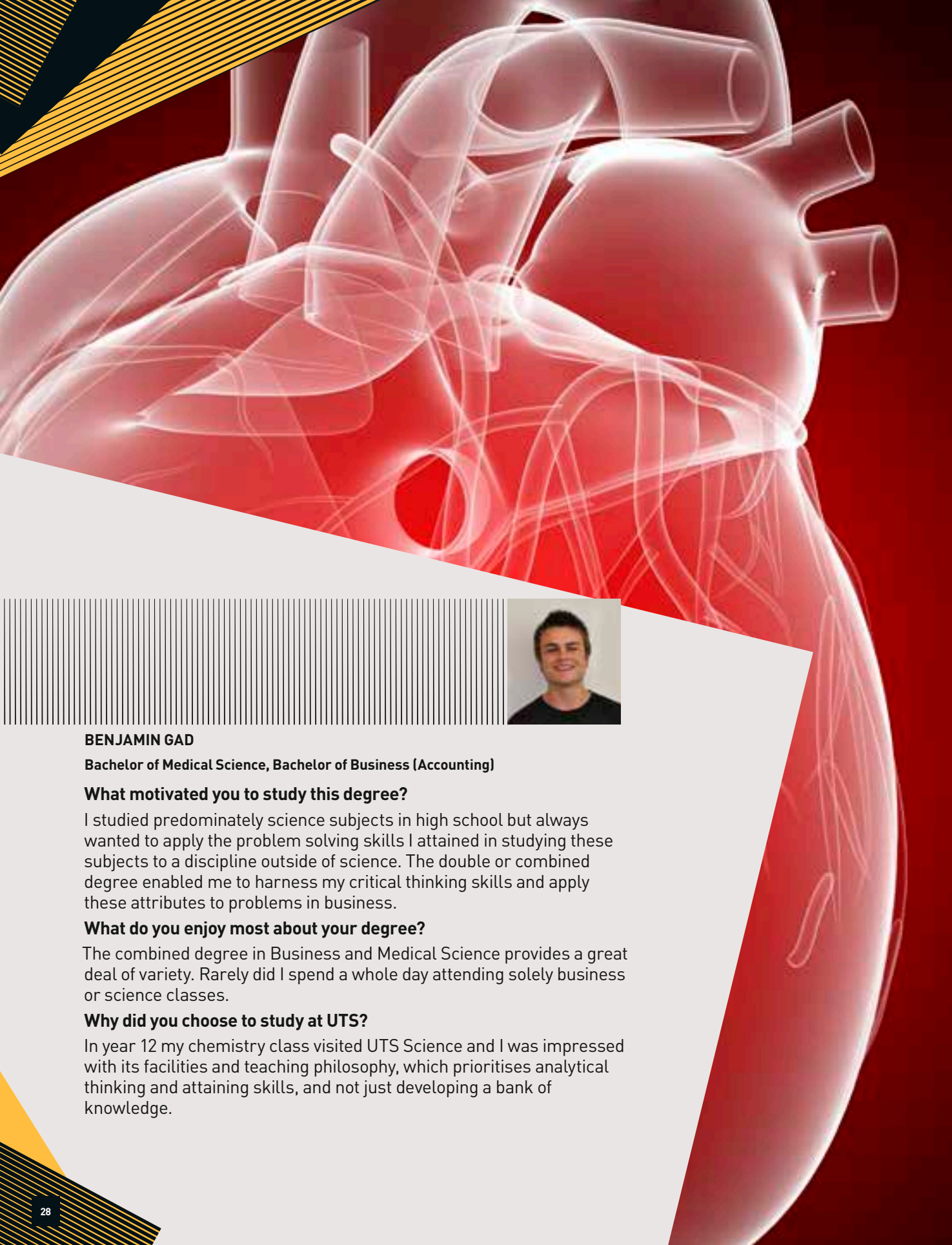
Product development in a variety of industries including pharmaceuticals, agriculture, wineries or breweries. Quality control in food and public health, drugs research such as anti-cancer vaccines, defence technologies, and the mining industry.

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

### COURSE STRUCTURE

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





**BENJAMIN GAD**

**Bachelor of Medical Science, Bachelor of Business (Accounting)**

**What motivated you to study this degree?**

I studied predominately science subjects in high school but always wanted to apply the problem solving skills I attained in studying these subjects to a discipline outside of science. The double or combined degree enabled me to harness my critical thinking skills and apply these attributes to problems in business.

**What do you enjoy most about your degree?**

The combined degree in Business and Medical Science provides a great deal of variety. Rarely did I spend a whole day attending solely business or science classes.

**Why did you choose to study at UTS?**

In year 12 my chemistry class visited UTS Science and I was impressed with its facilities and teaching philosophy, which prioritises analytical thinking and attaining skills, and not just developing a bank of knowledge.

# BACHELOR OF SCIENCE (MEDICAL SCIENCE)

## BACHELOR OF MEDICAL SCIENCE

### KEY INFORMATION

#### Bachelor of Science (Medical Science)

**2015 ATAR:** 77.45

**UAC Code:** 607015

**UTS COURSE Code:** C10242

#### Bachelor of Medical Science (specialist course)

**2015 ATAR:** 88.00

**UAC Code:** 607050

**UTS COURSE Code:** C10184

**Duration:** 3 years (full-time)  
6 years (part-time)

**Location:** City campus

#### Recommended Year 12 Subjects:

Maths Extension 1, Chemistry, Maths,  
2 units of English, 2 units of Science

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

### COURSE DESCRIPTION

You'll learn the human body's structure, function and disease processes at the cellular and whole organ level. The course is designed to train graduates for careers in medical and health-related sciences with the aim to produce professional medical scientists with highly adaptable and practical scientific skills accompanied by a thorough grounding in theory.

It also provides excellent foundation knowledge, thus a good preparation for entry into postgraduate degrees such as medicine, dentistry, pharmacy, biomedical engineering, nutrition and dietetics, complementary medicine, public health and health administration.

### CAREER OPTIONS INCLUDE

Medical scientist, medical imaging technician, human factors researcher, anaesthetic technician, cardiac technician, operating theatre technician, medical research, cancer research, gene therapy, embryology, geneticist, medical journalist or writer, health professions, nutrition, pathology.

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

### COURSE STRUCTURE

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



## **HERBERT HUISKAMP**

**Bachelor of Health Science in Traditional Chinese Medicine**

### **What do you enjoy most about your degree?**

The practical and hands-on nature of the course – I don't know of many degrees where you get regular treatments (massage and acupuncture) as part of your course. The clinical experience and internship is really stimulating and rewarding as you get to interact with real patients and observe practitioners treating patients. Also, the class size has been kept relatively small, where we can get to know one another, which is great.

### **Why did you choose to study at UTS?**

When I was researching for an undergraduate Chinese medicine course, only two universities in New South Wales offered them and UTS Science not only had the better reputation but the course structure was much simpler and appeared more balance between acupuncture and herbal medicine. UTS's campus is also very conveniently located, close to bus and train stations.

### **What is it like to study at UTS Science?**

The standard of education and teaching is very high throughout my studies. Courses are very hands-on and practical, with high quality equipment and resources provided. Computers and study areas are easily accessible throughout campus.

# BACHELOR OF HEALTH SCIENCE IN TRADITIONAL CHINESE MEDICINE

## KEY INFORMATION

**2015 ATAR:** 75.90  
**Duration:** 4 years (full-time)  
 8 years (part-time)  
**Location:** City campus  
**UAC Code:** 607055  
**UTS COURSE Code:** C10186

**Recommended Year 12 Subjects:**  
 Biology, 2 units of English, 2 units of  
 Science

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

**Professional recognition:** Accredited by  
 the Chinese Medicine Board of Australia.  
 Graduates are eligible for professional  
 membership

## COURSE DESCRIPTION

You'll learn about Chinese medicine, pharmacology of Chinese herbal medicine, Chinese massage, acupuncture and Chinese diagnostics.

This course also discusses the role of Chinese medicine as a complementary health care system. It aims to produce professional Chinese medicine practitioners with highly adaptable and practical clinical skills accompanied by a thorough grounding in theory.

UTS has an on-campus Chinese medicine clinic where students gain clinical experience from their first year of study.

You'll also have the opportunity to transfer into the combined degree of Bachelor of Health Science in Traditional Chinese Medicine, Bachelor of Arts in International Studies (C10164), which involves an additional two years of language and culture training in Australia and China.

## CAREER OPTIONS INCLUDE

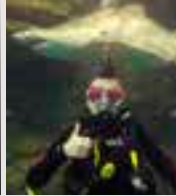
Private practitioner in acupuncture or Chinese herbal medicine, clinical therapist, TCM researcher, nutritional and health consultant.

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

## COURSE STRUCTURE

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





**REBECCA PAGNUCCO**

**Bachelor of Science in Environmental Biology, Bachelor of Arts in International Studies (Switzerland)**

**Why did you choose to study at UTS Science?**

When looking for a science degree, science at UTS stood out in that the degree is organised so that you gain a broad knowledge across several disciplines in your first year, before going into more specialised streams in second and third year. Having always been more inclined towards biology over any other science, this broader first year was ideal in comparison to other science degrees which were quite heavily based on physics, chemistry and mathematics particularly in the first year.

It also stood out in that I was able to combine my degree with International Studies and gain two qualifications within five years. As part of the international studies component, I will be travelling to Switzerland for a year.

**What is it like to study at UTS Science?**

I remember first coming to UTS and being amazed at how 'new' everything looked which is quite the contrary experience I had with other unis. It certainly makes for a great environment to work in particularly when you have a larger amount of contact hours than students in other degrees.

**What other activities did you take part at uni?**

I participated in the Beyond UTS International Leadership Development Program (BUiLD) and heard from a number of internationally renowned speakers and participate in a range of leadership and networking activities. BUiLD also supported me through a travel grant so I could participate in the International Science Summer School at Cambridge University.

Getting involved in these activities has allowed me to be one of the 100 students chosen for the UTS Accomplish Program.



# BACHELOR OF SCIENCE (ENVIRONMENTAL SCIENCES)

## KEY INFORMATION

**2015 ATAR:** 70.70  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607011  
**UTS COURSE Code:** C10242

**Recommended Year 12 Subjects:**  
 Maths Extension 1, Chemistry, Maths,  
 2 units of English, 2 units of Science  
**Bonus Points:** Available, see page 49  
**How to Apply:** See page 49

## COURSE DESCRIPTION

You'll have flexibility with this major because of the wide range of environment subjects available to this major. You choose subjects according to your interests ranging from environmental protection and management to remote sensing, to forest and mountain ecology to marine and fisheries communities.

It is structured around a combination of theoretical, field excursions and laboratory practicals. The aim of this major is to produce graduates who are fluent and exposed to a large section of environmental issues. There are four free choice electives where you

choose subjects from any discipline to further extend your specialisation and employment opportunities.

## CAREER OPTIONS INCLUDE

You will be well trained and equipped for any jobs related to the environment given the diverse nature of the subjects for this degree, which could include jobs such as environment education officers, conservation consultant, ecologist, ranger, marine park officer, fisheries manager, environment analyst, policy maker, botanist and environmental scientist.

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

## COURSE STRUCTURE

### Year 1

Principles of Scientific Practice  
 Chemistry 1  
 The Biosphere  
 Statistical Design and Analysis  
 Cell Biology and Genetics  
 Physical Aspects of Nature  
 Biocomplexity  
 Environmental Chemistry

### Year 2

Ecology  
 Experimental Design and Sampling  
 Geological Processes  
**Select three of the following:**  
 > Animal Behaviour and Physiology  
 > Environmental Forensics  
 > Marine Communities  
 > Plant Physiology and Ecophysiology  
 > Microbial Ecology  
 Elective x 2

### Year 3

**Select three from the following:**  
 > Aquatic Ecology  
 > Biodiversity Conservation  
 > Fisheries Resources  
 > GIS and Remote Sensing  
 > Marine Geosciences  
 > Wildlife Ecology  
**Select three from the following:**  
 > Environmental Protection and Management  
 > Stream and Lake Assessment  
 > Coral Reef Ecosystems  
 > Marine Productivity and Climate Change  
 > Semi-arid Ecology  
 Elective x 2

# BACHELOR OF ENVIRONMENTAL BIOLOGY

## KEY INFORMATION

**2015 ATAR:** 71.00  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607003  
**UTS COURSE Code:** C10223

**Recommended Year 12 Subjects:** Maths Extension 1, Chemistry, Maths, 2 units of English, 2 units of Science  
**Bonus Points:** Available, see page 49  
**How to Apply:** See page 49

## COURSE DESCRIPTION

You'll study natural systems, how these systems work, and how detrimental impacts on them can be assessed and recovered. You'll gain a thorough understanding of the way living organisms function both on land and in water, and the skills to detect and calculate detrimental effects on their function and the environment.

You'll learn these concepts and skills through a dynamic combination of theory, field and laboratory experiences. Excursions or field trips to places such as the Snowy Mountains, NSW Outback, Heron Island and the Great Barrier Reef, are core components of this course.

## CAREER OPTIONS INCLUDE

FBiologist, 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.

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

## COURSE STRUCTURE

Year 1	Year 2	Year 3
Chemistry 1 The Biosphere Cell Biology and Genetics Statistical Design and Analysis Principles of Scientific Practice Biocomplexity Environmental Chemistry Physical Aspects of Nature	Geological Processes Experimental Design and Sampling Ecology Animal Behaviour and Physiology Plant Physiology and Ecophysiology Electives x 3	GIS and Remote Sensing Wildlife Ecology Aquatic Ecology Biodiversity Conservation Stream and Lake Assessment Environmental Protection and Management Elective x 1 <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>&gt; Forest and Mountain Ecology</li> <li>&gt; Semi-arid Ecology</li> <li>&gt; Alpine and Lowland Ecology</li> </ul>

# BACHELOR OF MARINE BIOLOGY

## KEY INFORMATION

**2015 ATAR:** 72.00  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607035  
**UTS COURSE Code:** C10228

### Recommended Year 12 Subjects:

Maths Extension 1, Chemistry, Maths,  
 2 units of English, 2 units of Science

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

### Professional recognition and

**accreditation:** Australian Marine Science  
 Association

## COURSE DESCRIPTION

This course focuses on how the marine environment works and how it can be better managed. You'll acquire a thorough understanding of the way plants, animals and micro-organisms function in marine ecosystems, and the skills required to detect and assess detrimental impacts on these marine environments resulting from climate change and human impact.

With a practical focus, this course combines theory, laboratory and real-world experience through field trips to a range of marine environments including the Great Barrier Reef and NSW coast.

UTS has strong links with key industry and government partners through workshops and internships, which create excellent networking opportunities for students.

## CAREER OPTIONS INCLUDE

Marine biologist, coastal management, marine education, aquatic research, climate change research, fisheries scientist. Graduates work for fisheries, national parks and wildlife, environmental protection authorities, natural resources and planning consultancies.

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

## COURSE STRUCTURE

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

# BACHELOR OF SCIENCE (MATHEMATICS)

## KEY INFORMATION

**2015 ATAR:** 75.50  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607003  
**UTS COURSE Code:** C10242

**Recommended Year 12 Subjects:**  
 Maths Extension 1, Maths, 2 units of English

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

## COURSE DESCRIPTION

You'll gain a good understanding of mathematics, analysis and design of experiments, sample surveys, quality control, quantitative methods in management and finance, logistics, modelling techniques and mathematical foundations. You'll obtain a high level of analytical skills and learn to apply mathematics in complex real world situations. With an extensive list of mathematics subjects to choose from, you can customise your course according to your interests.

## CAREER OPTIONS INCLUDE

Financial consultant, valuer, quantity surveyor, banker, investment analyst, computer programmer, intelligence analyst. Mathematics graduates are in demand in a wide range of industries such as business, health, economics, engineering, market research, physical sciences and social sciences.

Graduates could be employed to analyse traffic flow at airports, calculate the optimum distribution of branches for a major bank, or set the rates of insurance premiums. Others might be part of a medical team working on ground-breaking research, modelling industrial inventory control, teaching or providing advice on the stock market. Wherever decisions have to be made, there is a need for graduates who have the skills to work with numerical information.

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

## COURSE STRUCTURE

Year 1	Year 2	Year 3
Introduction to Quantitative Management Introduction to Linear Dynamical Systems Introduction to Data Analysis Introduction to Sample Surveys Introduction to Mathematical Analysis and Modelling <b>Select one subject from Foundation Choice B</b>	Computational Linear Algebra Optimisation in Quantitative Management Stochastic Models Differential Equations Regression Analysis <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>&gt; Advanced Analysis</li> <li>&gt; Mathematical Methods</li> <li>&gt; Nonlinear Methods in Quantitative Management</li> <li>&gt; Network and Combinatorial Optimisation</li> <li>&gt; Stochastic Processes</li> <li>&gt; Seminar (Mathematics)</li> <li>&gt; Quality Control</li> <li>&gt; Seminar (Statistics)</li> </ul> Elective x 2	Advanced Calculus <b>Select two of the following:</b> <ul style="list-style-type: none"> <li>&gt; Quantitative Management Practice</li> <li>&gt; Mathematical Statistics</li> <li>&gt; Design and Analysis of Experiments</li> <li>&gt; Programming for Mathematical Modelling and Data Analysis</li> </ul> <b>Select three of the following:</b> <ul style="list-style-type: none"> <li>&gt; Advanced Analysis</li> <li>&gt; Mathematical Methods</li> <li>&gt; Nonlinear Methods in Quantitative Management</li> <li>&gt; Network and Combinatorial Optimisation</li> <li>&gt; Stochastic Processes</li> <li>&gt; Seminar (Mathematics)</li> <li>&gt; Quality Control</li> <li>&gt; Seminar (Statistics)</li> </ul> Elective x 2

# BACHELOR OF SCIENCE (STATISTICS)

## KEY INFORMATION

**2015 ATAR:** 75.50  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 607003  
**UTS COURSE Code:** C10242

**Recommended Year 12 Subjects:**  
 Maths Extension 1, Maths, 2 units of  
 English  
**Bonus Points:** Available, see page 49  
**How to Apply:** See page 49

## COURSE DESCRIPTION

Statistics involves the design of data collection to gain maximum information, and the interpretation of that data. It is very important in marketing and finance industries. You'll learn the theory involved in the discipline and also the analytical and problem-solving skills to answer a wide range of problems.

## CAREER OPTIONS INCLUDE

Market researcher, quantitative data analyst, financial consultant, valuer, quantity surveyor, investment analyst, systems analyst, banker.

Statistics graduates are commonly employed to identify underlying trends in business or social data, design surveys for market research companies, model the effects of decisions based on incomplete or uncertain data, or estimate risks in processes that inherently involve some degree of randomness.

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

## COURSE STRUCTURE

Year 1	Year 2	Year 3
Introduction to Quantitative Management Introduction to Linear Dynamical Systems Introduction to Data Analysis Introduction to Sample Surveys Introduction to Mathematical Analysis and Modelling <b>Select one subject from Foundation Choice B</b> Principles of Scientific Practice Probability and Random Variables	Computational Linear Algebra Optimisation in Quantitative Management Stochastic Models Differential Equations Regression Analysis <b>Select one of the following:</b> > Quality Control > Seminar (Statistics) Elective x 2	Mathematical Statistics Design and Analysis of Experiments Advanced Calculus <b>Select one of the following:</b> > Quality Control > Stochastic Processes > Seminar (Statistics) <b>Select two of the following:</b> > Advanced Analysis > Nonlinear Methods in Quantitative Management > Network and Combinatorial Optimisation Elective x 2



# BACHELOR OF MATHEMATICS AND COMPUTING

## KEY INFORMATION

**2015 ATAR:** 71.25  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 609045  
**UTS COURSE Code:** C10158

**Recommended Year 12 Subjects:** Maths Extension 1, Maths, 2 units of English  
**Bonus Points:** Available, see page 49  
**How to Apply:** See page 49  
**Professional recognition and accreditation:** Australian Computer Society

## COURSE DESCRIPTION

You'll be taught the underlying mathematics and language of computing combined with the ability to model and analyse practical situations.

You'll develop advanced skills in statistics and operations research to interpret data and put it to use. This combines with a thorough grounding in computing sciences and communications networking.

This course is designed to meet the increasing industry need for graduates with both computational and mathematical skills.

## CAREER OPTIONS INCLUDE

Investment analyst, computer programmer, management consultant, intelligence analyst, information system development. Graduates can find employment in quantitative finance, computing and information technology and operations research. Teachers with qualifications in this field are also highly sought after. The combination of maths and computing provides a competitive edge and access to careers in both areas.

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

## COURSE STRUCTURE – based on commencement in Autumn

Year 1	Year 2	Year 3
<b>DATA ANALYTICS MAJOR</b>		
Communication for IT Professionals Introduction to Information Systems Introduction to Linear Dynamical Systems Introduction to Data Analysis Regression Analysis Programming Fundamentals Web Systems Introduction to Mathematical Analysis and Modelling	Computational Linear Algebra Introduction to Quantitative Management Introduction to Data Analytics Mathematical Statistics Database Fundamentals Business Requirements Modelling Programming for Mathematical Modelling and Data Analysis <b>Select one from the following:</b> > Networking Essentials > Strategic e-Business Technologies	Analytics Capstone Project <b>Select two from the following:</b> > Design and Analysis of Experiments > Stochastic Models > Multivariate Statistics <b>Select one from the following:</b> > Database Programming > Engineering Computations Project Management and the Professional Probability and Random Variables <b>Select one from the following:</b> > Introduction to Sample Surveys > Quality Control > Seminar (Statistics) <b>Select one from the following:</b> > Advanced Data Analytics > Object-relational Databases > Engineering Computations > Programming with Patterns

## COURSE STRUCTURE – based on commencement in Autumn

Year 1	Year 2	Year 3
<b>COMPUTATIONAL MATHEMATICS MAJOR</b>		
<p>Communication for IT Professionals Introduction to Information Systems Introduction to Linear Dynamical Systems Introduction to Data Analysis Regression Analysis Programming Fundamentals Web Systems Introduction to Mathematical Analysis and Modelling</p>	<p>Computational Linear Algebra Introduction to Quantitative Management Business Requirements Modelling <b>Select one from the following:</b> &gt; Mathematical Statistics &gt; Stochastic Models &gt; Advanced Calculus Database Fundamentals Programming for Mathematical Modelling and Data Analysis Applications Programming <b>Select one from the following:</b> &gt; Networking Essentials &gt; Strategic e-Business Technologies</p>	<p>Analytics Capstone Project <b>Select two from the following:</b> &gt; Mathematical Statistics &gt; Stochastic Models &gt; Advanced Calculus <b>Select one from the following:</b> &gt; Data Structures and Algorithms &gt; e-Business Trading &gt; Interface Design &gt; Database Programming &gt; Engineering Computations &gt; Introduction to Data Analytic Project Management and the Professional Probability and Random Variables <b>Select one from the following:</b> &gt; Differential Equations &gt; Mathematical Methods &gt; Stochastic Processes &gt; Seminar (Mathematics) <b>Select one from the following:</b> &gt; Intelligent Agents &gt; Software Engineering Practice &gt; Engineering Computations</p>
<b>BUSINESS MODELLING MAJOR</b>		
<p>Communication for IT Professionals Introduction to Information Systems Introduction to Linear Dynamical Systems Introduction to Data Analysis Introduction to Quantitative Management Business Requirements Modelling Web Systems Introduction to Mathematical Analysis and Modelling</p>	<p>Computational Linear Algebra Optimisation in Quantitative Management Database Fundamentals Programming Fundamentals Regression Analysis Programming for Mathematical Modelling and Data Analysis <b>Select one from the following:</b> &gt; Networking Essentials &gt; Strategic e-Business Technologies <b>Select one from the following:</b> &gt; Collaborative Business Processes &gt; Innovations for Global Relationship Management &gt; Networked Enterprise Architecture</p>	<p>Quantitative Management Practice Project Management and the Professional Stochastic Models <b>Select one from the following:</b> &gt; Business Process and IT Strategy &gt; Collaborative Business Processes &gt; Finance and IT &gt; Information System Development Methodologies Strategic IT Project Probability and Random Variables <b>Select one from the following:</b> &gt; Introduction to Sample Surveys &gt; Nonlinear Methods in Quantitative Management &gt; Network and Combinatorial Optimisation &gt; Quality Control &gt; Seminar (Statistics) <b>Select one from the following:</b> &gt; Collaborative Business Processes &gt; Innovations for Global Relationship Management &gt; Networked Enterprise Architecture &gt; Systems Testing and Quality Management</p>

# BACHELOR OF MATHEMATICS AND FINANCE

## KEY INFORMATION

**2015 ATAR:** 79.65  
**Duration:** 3 years (full-time)  
 6 years (part-time)  
**Location:** City campus  
**UAC Code:** 609040  
**UTS COURSE Code:** C10155

**Recommended Year 12 Subjects:**  
 Maths Extension 1, Maths, 2 units of English  
**Bonus Points:** Available, see page 49  
**How to Apply:** See page 49

## COURSE DESCRIPTION

Mathematical techniques are increasingly important for risk assessment and the optimisation of financial plans, and there is a corresponding demand for highly skilled graduates in these areas.

This course combines both mathematical and business studies. Graduates with this speciality are in high demand in today's current financial market.

Students learn the theory behind investment principles and how financial markets operate, and develop high level analytical, statistical and algebraic skills.

## CAREER OPTIONS INCLUDE

Graduates can find employment in stock market analysis, providing advice on portfolio management, option pricing, prediction of movements in international money markets and financial risk management.

Possible jobs include financial analyst, stock market analyst, portfolio manager, financial risk analyst, reinsurance pricing analyst, market research analyst, banker, policy advisor, quantitative analyst, forensic accountant, investment analyst, taxation consultant, treasurer or economist.

Major possible employers include banks, insurance companies, superannuation providers, government regulatory bodies such as APRA, ASIC and other major financial bodies.

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

## COURSE STRUCTURE

Year 1	Year 2	Year 3
Introduction to Linear Dynamical Systems Introduction to Data Analysis Accounting for Business Decisions A Economics for Business Fundamentals of Business Finance Probability and Random Variables Introduction to Mathematical Analysis and Modelling Introduction to Computational Methods	Computational Linear Algebra Optimisation in Quantitative Management Stochastic Models The Financial System Differential Equations Regression Analysis Economics for Business 2 Investment Analysis	Mathematical Statistics Advanced Calculus Derivative Securities Corporate Finance: Theory and Practice Time Series Econometrics Stochastic Processes <b>Select one of the following:</b> <ul style="list-style-type: none"> <li>&gt; Nonlinear Methods in Quantitative Management</li> <li>&gt; Mathematical Methods</li> <li>&gt; Seminar (Mathematics)</li> </ul> <b>Select one of the following options:</b> <ul style="list-style-type: none"> <li>&gt; Corporate Financial Analysis (Capstone)</li> <li>&gt; International Financial Management</li> <li>&gt; Issues in Corporate Finance</li> </ul>



**JASMINE TAN**

**Bachelor of Mathematics and Finance**

**What motivated you to study this degree?**

I loved mathematics in high school and wanted to explore the applications of mathematics, real solutions for a real world.

**What do you enjoy most about your degree?**

I love the variety of mathematics offered and the fact that I am being taught by world-class and recognised professors. There is also a wonderful support network to make sure you understand the content in classes.

**Why did you choose to study at UTS?**

I chose to study at UTS because I will be taught by experts in the field, well-known professors who have won accolades internationally.

**What is it like to study at UTS Science?**

UTS Science is like no other. Staff members genuinely care about the career prospects of each of the degrees offered and hold seminars to show career pathways available. Career counselling and various workshops are there to assist you to get that job or interview. In addition, conferences and public lectures are held to encourage community engagement to further showcase the relevance of science and mathematics in today's world.

# COMBINED DEGREES

## KEY INFORMATION

### Bachelor of Science, Bachelor of Business

2015 ATAR: 85.75

UAC Code: 609170

UTS COURSE Code: C10162

### Bachelor of Medical Science, Bachelor of Business

2015 ATAR: 93.15

UAC Code: 609175

UTS COURSE Code: C10163

### Bachelor of Biotechnology, Bachelor of Business

2015 ATAR: 89.15

UAC Code: 609176

UTS COURSE Code: C10169

**Duration:** 4 years (full-time)

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

## Combining Science with Business

UTS combined degrees open up a broader range of careers opportunities. You can combine your science or mathematics degree with another specialisation such as business, international studies, engineering and law, giving you access to two specialisations. You can complete both degrees in a shorter duration in comparison of completing them separately.

You will develop a combination of practical scientific and professional business skills. You will be prepared for scientific practice and business and management in technical, financial, regulatory, environmental, health or biomedical oriented businesses, industries or government departments. Demand is growing for graduates able to cross the divide between science and business.

### COURSE STRUCTURE

You are required to complete a total of 192 credit points or 32 subjects, comprising equal part of science and business subjects.

For the combined degree Bachelor of Science, Bachelor of Business, you choose one major each from both the science and business component. Refer to the diagram of majors available.

For both the combined degrees, Bachelor of Medical Science, Bachelor of Business and Bachelor of Biotechnology, Bachelor of Business, you specialise in the chosen science disciplines which are medical science or biotechnology, and choose a business major.

## \* MAJORS AVAILABLE

For more details on specific science majors, please refer to the relevant single major/degree on pages 13 to 40

### BACHELOR OF BUSINESS MAJORS\*

- > Accounting
- > Economics
- > Finance
- > Human Resource Management

**Business majors**

- > International Business
- > Management
- > Marketing
- > Financial Services
- > Marketing Communication

**Business majors**

### BACHELOR OF SCIENCE MAJORS\*

- > Applied Chemistry
- > Applied Physics
- > Nanotechnology

**Physical Sciences  
Foundation  
Stream**

- > Biotechnology
- > Biomedical Science
- > Medical Science
- > Environmental Sciences

**Life Sciences  
Foundation  
Stream**

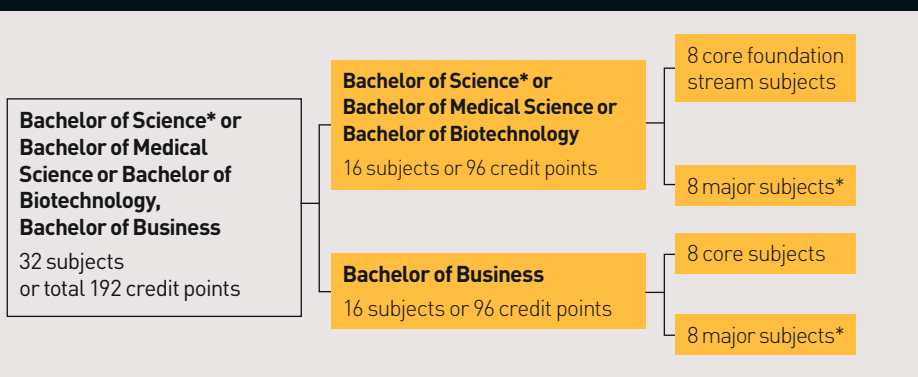
- > Mathematics
- > Statistics

**Mathematical  
Sciences**



## CAREERS

	<b>Bachelor of Science Bachelor of Business</b>	<b>Bachelor of Medical Science, Bachelor of Business</b>	<b>Bachelor of Biotechnology, Bachelor of Business</b>
<b>Career options</b>	Gives you practical skills and knowledge that employers demand in both science and business-related fields. Depending on the chosen majors, graduates can work in commodity and resource trading, pharmaceutical industry, as scientists in leading consumer goods companies, health services, medical research, hospitals or environmental protection agencies.	Designed to produce graduates for scientific practice or entry into business management in health and medical businesses or institutions.  This combined degree offer opportunities in the growth area of health services and management.	Designed to produce graduates for scientific practice in the biotechnology industry or entry into business management in science-based businesses or institutions.  This combined degree allows graduates to choose between a career in business or biotechnological science. It is particularly suitable for a career in the rapidly expanding and profitable biotechnology business sector where both disciplines are required.
<b>Possible jobs</b>	You could find jobs as an analyst, consultant, statistician, communicator, marketer, researcher and scientist within government agencies, manufacturing, product development, scientific publishing, banking and finance, scientific and research organisations and large corporations.	Job opportunities include any positions in health services and management in government, hospitals, industry and medical research organisations.  Job options include hospital scientist, lab or medical pathology, technician, medical or science writer, analyst, consultant, marketer, product developer, etc.	Job opportunities include manager or scientist in a bio-analytical lab, bio-business, CSIRO, government biotechnology support, regulatory agency, stockbroking, vaccine manufacture or wine production.  Graduates can also be an analyst, biotechnologist, marketer, product developer or research scientist with industry or scientific research organisation.
<b>More info</b>	<a href="http://www.handbook.uts.edu.au/courses/c10162.html">www.handbook.uts.edu.au/courses/c10162.html</a>	<a href="http://www.handbook.uts.edu.au/courses/c10163.html">www.handbook.uts.edu.au/courses/c10163.html</a>	<a href="http://www.handbook.uts.edu.au/courses/c10169.html">www.handbook.uts.edu.au/courses/c10169.html</a>
	<a href="http://www.uts.edu.au/future-students/science">www.uts.edu.au/future-students/science</a>		



You can complete these degrees over four years of full time study with approximately 16 hours each week on campus. You can also transfer from your *single science or maths degree\** into a combined degree should you meet academic performance requirements.

# Combined Degrees

## KEY INFORMATION

**Bachelor of Science\*,  
Bachelor of Arts in  
International Studies**

**2015 ATAR:** 78.65

**UAC Code:** 609250

**UTS COURSE Code:** C10243

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

**2015 ATAR:** 89.95

**UAC Code:** 609255

**UTS COURSE Code:** C10167

**Bachelor of Health Science in  
Traditional Chinese Medicine, Bachelor  
of Business Arts in International  
Studies (China only)**

**2015 ATAR:** 75.90

**UAC Code:** 609346

**UTS COURSE Code:** C10164

**Bachelor of Mathematics and Finance,  
Bachelor of Business Arts in  
International Studies**

**2015 ATAR:** 85.90

**UAC Code:** 609220

**UTS COURSE Code:** C10157

**Bachelor of Mathematics and  
Computing, Bachelor of Business Arts  
in International Studies**

**2015 ATAR:** 84.55

**UAC Code:** 609225

**UTS COURSE Code:** C10224

**Duration:** 5 years (full-time)

**Bonus Points:** Available, see page 49

**How to Apply:** See page 49

## Combining Science with International Studies

You will develop practical scientific and mathematical skills with an international dimension. International study is unique as it allows you to gain qualifications in language, intercultural and international awareness to a specific country of your choice. This added dimension expands your career opportunities and aims to make you more marketable to future employers in the global workplace.

You will be living overseas for a year experiencing the international component as part of your combined degree.

### WHAT WILL I LEARN IN THE INTERNATIONAL STUDIES COMPONENT?

- > **Learn a language** – you don't need any previous language experience. Language and culture subjects are catered to both beginners and students with prior language knowledge.
- > **International connections** – you will gain thorough knowledge of another language and make overseas connections.
- > **Open your mind** – you will gain confidence to take your career globally.
- > **UTS support** – you will be supported by UTS in partnership with universities in other countries.

### COURSE STRUCTURE

You are required to complete a total of 240 credit points or 40 subjects, comprising 24 science subjects and 16 language and culture subjects. The Bachelor of Arts in International Studies is not offered as a separate degree, but is completed only in combination with a professional degree.

### COURSE STRUCTURE

**Year 1**

**Start your degree**

\*Professional degree subjects (8 subjects)

**Year 2**

**Combined study**

\*Professional degree subjects (4 subjects)

Language and culture (2 subjects)

Foundation in international studies  
(1 subject)

**Year 3**

**Combined study**

\*Professional degree subjects (4 subjects)

Language and culture (2 subjects)

Contemporary Society (1 subject)

**Year 4**

**Study overseas**

In-country study

**Year 5**

**Final subjects**

\*Professional degree subjects (8 subjects)

Note: \*Professional degree subjects indicate your science and maths degree.

For the combined degree *Bachelor of Science, Bachelor of Arts in International Studies*, you choose one major from both the science and international studies component. Refer to the diagram of majors available.

CAREERS					
	Bachelor of Science, Bachelor of Arts in International Studies	Bachelor of Medical Science, Bachelor of Arts in International Studies	Bachelor of Health Science in Traditional Chinese Medicine, Bachelor of Arts in International Studies (China)	Bachelor of Mathematics & Finance, Bachelor of Arts in International Studies	Bachelor of Mathematics & Computing, Bachelor of Arts in International Studies
<b>Career options</b>	Global opportunities are enhanced by the international perspective provided by the international studies component and by the specific language and culture chosen.	Multinational pharmaceutical companies look to medical science graduates to work in drug registration, clinical trials coordination, as technical or marketing representatives and as policy analyst	Graduates will be equipped for private and public practice. Country of choice: China is the only in-country study available to this combined degree.	Graduates will find interesting and rewarding employment in quantitative and financial analysis in major financial institutions such as banks, insurance companies and government instrumentalities.	Demand for mathematics and computing skills is increasing as quantitative analysis becomes more widespread in dealing with commercial and industrial problems.
<b>Possible jobs</b>	Please refer to relevant major in the single Bachelor of Science degree, see pages 10 to 33	Include positions in government departments, private and public hospitals and public health units, nationally and internationally.	Include acupuncture or Chinese herbal medicine practitioner in private or community health services.	Include positions in derivative pricing and risk management, portfolio management, stock market analysis, and other areas of high responsibility and high reward in the finance industry.	Include programmer, quantitative analyst, software engineer, systems analyst and technical applications software developer.
<b>More info</b>	<a href="http://www.handbook.uts.edu.au/courses/c10243.html">www.handbook.uts.edu.au/courses/c10243.html</a>	<a href="http://www.handbook.uts.edu.au/courses/c10167.html">www.handbook.uts.edu.au/courses/c10167.html</a>	<a href="http://www.handbook.uts.edu.au/courses/c10164.html">www.handbook.uts.edu.au/courses/c10164.html</a>	<a href="http://www.handbook.uts.edu.au/courses/c10157.html">www.handbook.uts.edu.au/courses/c10157.html</a>	<a href="http://www.handbook.uts.edu.au/courses/c10224.html">www.handbook.uts.edu.au/courses/c10224.html</a>
	<a href="http://www.handbook.uts.edu.au/courses/c10164.html">www.handbook.uts.edu.au/courses/c10164.html</a>				

### \* MAJORS AVAILABLE

For more details on specific science majors, please refer to the relevant single major/degree on pages 10 to 33

### BACHELOR OF SCIENCE MAJORS\*

- > Applied Chemistry
- > Applied Physics
- > Nanotechnology

**Physical Sciences Foundation Stream**

- > Biotechnology
- > Biomedical Science
- > Medical Science
- > Environmental Sciences

**Life Sciences Foundation Stream**

- > Mathematics
- > Statistics

**Mathematical Sciences**

### BACHELOR OF ARTS IN INTERNATIONAL STUDIES\*

- > Argentina
- > Canada
- > Chile
- > China
- > Colombia
- > Costa Rica
- > France
- > Germany
- > Italy
- > Japan
- > Latino USA
- > Mexico
- > Spain
- > Switzerland

**In-country study (Country of choice)**

- > French
- > Spanish
- > Chinese
- > Italian
- > Japanese

**Learn a new language**

# BACHELOR OF SCIENCE, BACHELOR OF CREATIVE INTELLIGENCE AND INNOVATION

## KEY INFORMATION

**2015 ATAR:** 76.40  
**Duration:** 4 years (full-time)  
**Location:** City campus  
**UAC Code:** 609585  
**UTS COURSE Code:** C10330

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**Bonus Points:** Available, see page 49  
**How to Apply:** See page 49

You will gain high-level conceptual thinking and problem-solving practices that lead to the development of innovative, creative and entrepreneurial outcomes. These creative intelligence competencies enable you to navigate across a rapidly accelerating world of change.

In the science component of this combined degree, you select a chosen specialisation or major according to your interests to tailor your study program.

Bachelor of Science available majors includes:

- > Applied Chemistry
- > Applied Physics
- > Nanotechnology
- > Mathematics
- > Statistics
- > Biotechnology
- > Biomedical Science
- > Medical Science
- > Environmental Sciences
- > Flexible

The flexibility of this course allows students to either specialise in a specific professional area or to develop skills and knowledge in a range of scientific disciplines. All majors aim to produce professional scientists with a thorough grounding in theory and highly adaptable and practical scientific, experimental

and computational skills relevant to the discipline chosen.

## COURSE STRUCTURE

You are required to complete a total of 240 credit points or 36 subjects, comprising 24 science subjects and 12 creative intelligence and innovation core subjects.

You can complete the degree in four years of full-time study, with approximately 24 hours each week on campus.

## CAREER

You will be highly versatile as they can work in almost any industry such as biotechnology, biomedical science, medical science, environmental management and forensics, mathematics, statistical modelling, applied chemistry, applied physics, nanotechnology and material science.

By being creative thinkers, initiators of new ideas, scenario planners, global strategists, open network designers or sustainable futures innovators within your chosen field of study, you will maximise the potential of your chosen profession, making you highly sought after.

For more detailed information, see <http://handbook.uts.edu.au/courses/c10330.html>

## COURSE STRUCTURE

	Year 1	Year 2	Year 3	Year 4
<b>Summer Semester</b>		Creative Practice and Methods (8cp)	Creative and Complexity (8cp)	Initiatives and entrepreneurship (8cp)
<b>Autumn semester</b>	4 science subjects (24cp)	4 science subjects (24cp)	4 science subjects (24cp)	Envisioning futures (6cp) Select one of the following (6cp): Innovation internship A or Speculative Start-up Innovation Capstone: Realisation and Transformation (12cp)
<b>July session</b>	Problems to possibilities (8cp)	Past, present, future of innovation (8cp)	Leading innovation (8cp)	
<b>Spring semester</b>	4 science subjects (24cp)	4 science subjects (24cp)	4 science subjects (24cp)	Professional Practice at the cutting edge (6cp) Innovation Internship B (6cp) Innovation Capstone: Research and Development (12cp)

# HONOURS YEAR: WHAT IS IT?

An Honours degree is the first step towards a career in research. It gives you the opportunity to draw together your previous science or mathematics studies and focus your knowledge, skills and intellect on an exciting piece of original research.

## WHAT ARE THE BENEFITS?

- > Opens doors to many opportunities, especially in the field of scientific research.
- > Opportunity to undertake exciting, original research under the supervision of recognised researchers, contributing to real discoveries and publishing one or more scientific papers.
- > Improves career prospects because it's proof to future employers that you can

plan and organise work, find solutions to problems, work independently and communicate ideas and results both verbally and on paper.

If you intend to pursue a career in research, an honours degree is highly recommended and is the pre-requisite for enrolling in a PhD.

## WHAT DOES IT INVOLVE?

You'll be responsible for a research project of your choice, subject to faculty approval. You'll work in collaboration with a faculty academic supervisor, where you'll seek advice and guidance, but much of your research will be done on your own. Exploring your research potential and producing a thesis at the end of the year.

There'll be no formal classes to attend, but you'll meet with your supervisor regularly. In some cases, your work may be undertaken in external laboratories such as hospitals, CSIRO or other industry centres. This provides valuable industry experience and networking opportunities.

Full-time study will take one year, and part-time study is also available. Commencement is possible in March or mid-year depending on arrangements with your supervisors.

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



EMMA DAWSON

**Honours project:** Identifying protein interactions of a new tubulin-like protein, i.e. FtsZ4 in the archaeal organism *Haloferax volcanii*

### Describe your honours project

My honours project involved looking at a possible missing link. The evolution of an important superfamily of proteins -Tubulin and FtsZ, where I aimed to develop and collect preliminary data for both artificial and native environment. I could identify interactions of my protein interest FtsZ4 with its native environment in *Haloferax volcanii*. In understanding what proteins FtsZ4 interacts with in its native environment it will help us further understand its function and structure within the cell.

### Why did you choose to pursue an honours degree as opposed to going into the work force?

I chose to pursue an honours degree to give me the necessary lab experience once I'm in the workforce. I am also very keen on research, especially in cell biology because it is an important fundamental area of research. I chose a proteomics honours project because it is one of the upcoming areas of research, where it combined both cell biology and proteomics and allowed me to receive a range of scientific knowledge and skills.

### What attracted you to research at UTS Science?

Research challenges past and current science, and looks at the greater picture and the impact of science in the society, which I liked a lot. Also you cannot go past the facilities available at UTS. But in the end, the atmosphere at UTS Science is always buzzing – keep you active, excited and motivated!



# Fees, Scholarships & Financial Assistance

## LOCAL STUDENTS

Most local students will be studying in a Commonwealth Supported Place which means the Australian Government makes a contribution to the cost of your study while you pay a student contribution. If eligible, you can elect to pay your student contribution upfront and receive a 10% discount. Alternatively, you can defer payment of your student contribution using HECS-HELP visit: [www.goingtouni.gov.au](http://www.goingtouni.gov.au) for more info.

## FEES FROM 2016 ONWARDS

As part of its 2014-15 Budget announcements, the Federal Government indicated its intention to introduce major changes to higher education funding that will have significant implications for universities and students, particularly Commonwealth Supported students. These changes are subject to the passage of legislation. In the case that this legislation is passed through the Senate, UTS will work closely with the Department of Education to determine fee amounts for 2016 onwards. Check [www.uts.edu.au/future-students/undergraduate](http://www.uts.edu.au/future-students/undergraduate) for updates.

## INTERNATIONAL STUDENTS

This guide is not intended for international students. For information on fees for international students visit: [www.uts.edu.au/international](http://www.uts.edu.au/international)

## FINANCIAL ASSISTANCE

The UTS Financial Assistance Service can help students with practical and financial aspects of life at university. Local UTS students with ongoing and long-term low income can approach our financial assistance service for support with advocacy to Centrelink, information on HECS and FEE-HELP, loans and equity based scholarships and grants, and advice on budgeting.

As a UTS student you may be eligible for an interest free student loan from UTS of up to \$500 to assist with bills, rent, one-off living expenses and other costs, such as medical costs. For information on financial assistance at UTS visit [www.ssu.uts.edu.au/fassist](http://www.ssu.uts.edu.au/fassist)

## SCHOLARSHIPS

UTS Science offers a range of scholarships to high achieving school leavers who would like to pursue their Bachelor's degree at UTS Science. These Scholarships include:

### UTS Science Dean's Scholarship

- > Two awarded annually to top HSC students
- > Value: \$10,000

### UTS Science High Achievers Scholarship

- > Over 20 awarded annually to top HSC students.
- > Value: \$2,000 pa over three years

### UTS Science Indigenous Scholarship

- > Two awarded annually to top Indigenous students.
- > Value: \$2,000 pa over three years

For more details on Faculty-specific scholarships, visit [www.science.uts.edu.au/future/](http://www.science.uts.edu.au/future/)

The University also offer a range of scholarships to assist students in need of financial assistance.

### Vice-Chancellor's Outstanding Achievement Scholarship

- > UTS offers up to five of these scholarships to top HSC students.
- > Value: \$12,500 pa for the duration of your undergraduate studies.

### Vice-Chancellor's Merit Scholarship

- > UTS offers up to five of these scholarships to top HSC students who are assessed as being in need of financial assistance.
- > Value: \$12,500 pa for the duration of your undergraduate study in any discipline.

### Vice-Chancellor's Indigenous Undergraduate Tuition Fee Scholarship

- > Scholarships are awarded on academic merit to Australian Indigenous students who are commencing higher education studies for the first time.
- > Value: Tuition fees for the duration of your undergraduate studies.

For information on all scholarships visit <http://uts.ac/scholarshipsuts>

# Applying to UTS

Applications for undergraduate courses must be lodged online through the Universities Admission Centre (UAC): [www.uac.edu.au](http://www.uac.edu.au) Applications open in August and must be received by UAC by the end of September. Late fees apply for applications received after this date.

## CURRENT SCHOOL LEAVERS

For high school student applicants, selection is based on your ATAR or IB only. If you completed your IB in another country you may also need to demonstrate your English language proficiency. You may also be eligible for entry via one of the UTS Access Schemes.

## MATURE-AGED STUDENTS AND NON-CURRENT SCHOOL LEAVERS

Selection is based on academic merit, measured by your previous ATAR and/or post school subjects already completed. You may also be eligible for entry via one of the UTS Access Schemes.

## INDIGENOUS AUSTRALIANS

If you identify as Australian Aboriginal or Torres Strait Islander, the Jumbunna Indigenous House of Learning will provide specialised assistance to help you gain entry to UTS through the Jumbunna Direct Entry Program or UNISTART. Visit: [www.jumbunna.uts.edu.au](http://www.jumbunna.uts.edu.au)

## ENTRY SCHEMES

### Year 12 Bonus Scheme

If you are in high school and perform well in HSC subjects relevant to the degree you apply for, you may be eligible to receive up to a maximum of 5 year 12 bonus points.

For more information visit [uts.edu.au/futurestudents/year-12-bonus](http://uts.edu.au/futurestudents/year-12-bonus)

### Educational Access Schemes

UTS Educational Access Schemes take into account a range of educational disadvantages that may have affected your most recent academic performance. The following schemes assist applicants to gain entry to UTS courses:

- > inpUTS Educational Access Scheme awards 10 concessional ATAR points for high school leavers and students with post-secondary qualifications who have experienced educational disadvantage.
- > UTS Elite Athletes and Performers Special Admissions Scheme awards 5 concessional points off the ATAR cut-off to applicants who are elite athletes and/or performers (representing school or state in national level competition) and whose sport or performance commitments have impacted on their studies.

For more information visit: [www.uts.edu.au/future-students/undergraduate](http://www.uts.edu.au/future-students/undergraduate)

# AUSTRALIA'S NEWEST CAMPUS



OUR REINVENTED CAMPUS IS NOW READY, WITH THREE  
NEW BUILDINGS AND A HOST OF WORLD-CLASS FACILITIES.  
VISIT US TO SEE WHY UTS IS AUSTRALIA'S MOST INNOVATIVE CAMPUS.

Main image: Shahnaw Roshan. Building images: Andrew Worssam.

## UTS OPEN DAY

**29 AUGUST 2015**

City campus, 9am – 4pm

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

**DISCLAIMER:** The information in this brochure is correct as of February 2015. Changes in circumstances after this date may alter the accuracy or currency of the information. UTS reserves the right to alter any matter described in this brochure without notice. Readers are responsible for verifying information that pertains to them by contacting the University.

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ANDREW WORSSAM AND ANSH BOSE

 **UTS Future Students**  
 **UTS Science**