FACULTY SNAPSHOT
Students*
3,645 total
240 postgraduate by coursework
312 postgraduate by research
Staff
194 teaching and research
101 professional and technical

UTS AT A GLANCE
Students*
39,074 total
10,896 postgraduate by coursework
1583 postgraduate by research
26,595 undergraduate

UTS STUDENT DIVERSITY
50% female students
50% male students
38% are 25 or older

* As at September 2014

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Our vision at UTS Science is to deliver practice-oriented, globally relevant and research focused courses, producing graduates for the global workplace.

Our mission is supported by vibrant, high impact research in an inclusive environment, world class facilities and interaction with the scientific professions and its community.

Your postgraduate programs at UTS Science will give you advanced and comprehensive understanding of current scientific knowledge and professional skills for the changing work environment.

You will be well supported by our academics who are also active researchers and who are world-renowned experts.

At the start of 2015, UTS Science received another new building, increasing our research and teaching capabilities, adding more exciting opportunities for discovery and enhanced learning.

Professor Bruce Milthorpe
Dean, UTS Science

“Our vision at UTS Science is to deliver practice-oriented, globally relevant and research focused courses, producing graduates for the global workplace.”
Today’s workplace is constantly changing. **UTS Science is committed to continuing professional education by delivering good applicable science that is relevant, advances innovation and technology, and provides solutions** to the most significant issues facing our world.

**Career and industry relevant**

We ensure our graduates are ready for the global workplace with skills, knowledge and experience employers value.

Lecturers are active researchers who work closely with industry nationally and internationally. Example, Professor Louise Ryan was recently made a fellow in the Australian Academy of Science in recognition of her work in statistics.

Our courses are continually reviewed to reflect current situations and developments in the marketplace. For instance the Scientific Method, one of the professional subjects in the Master of Science, develops your ability to apply experimental methods to a diverse range of scientific applications. This is an essential capability as it gives you a logical framework for conducting and assessing scientific research including designing a good experiment, creating hypotheses, designing appropriate data collection, determining sample size and analysing data.

**Innovative, practice-based learning**

Our courses are innovative, giving you both scientific knowledge and professional expertise – achieving the ideal balance between scientific learning and professional expertise.

Practice-based learning and group work are high on the agenda in the delivery of our courses. In the coursework programs, you are required to complete both professional and advanced scientific subjects to better prepare you for the workplace, boosting knowledge with the latest scientific know-how methods and professional skills.

Professional subjects give you the opportunity to formulate ideas, market the product, establish a start-up company, manage intellectual property and pitch it to investors.

**Research integrated learning**

Whether you are undertaking research or studying coursework program with UTS Science, our strong research culture means you will be taught or supervised by world-recognised experts and exposed to the latest research findings, networks and equipment.

**World class facilities**

Our facilities are modern and comparable to, if not better than those in advanced commercial laboratories. You learn to use scientific equipment and practice your skills in a realistic environment similar to the workplace. You will be well-supported and exposed to the latest technologies including a suite of imaging facilities, such as the OMX Blaze super resolution microscope, advanced proteomics, analytical and forensics labs.

UTS is leading the way in delivering a world-class campus through its billion dollar Campus Master Plan. In early 2015, UTS Science opened another new purpose-built building consisting of learning and teaching spaces, research labs and a Super lab* fitted with the latest equipment and technology.

**Global recognition**

UTS is a leading provider of science research and education with many of its academic staff recognised internationally.

In the recent ERA report, UTS Science received rankings of at, above, or well above world standard.

*UTS Super lab is a large scale, multi disciplinary laboratory to facilitate teachings
World Class Science Facilities

The UTS City Campus Master Plan is a once-in-a-generation vision to deliver a vibrant, engaging and collaborative campus of the future.

**Your Future Campus**

UTS is in the midst of its $1 billion City Campus revitalisation, to deliver a vibrant, engaging and collaborative campus of the future.

UTS City Campus Master Plan will change the way UTS teach and conduct research. It will create a series of new buildings and facilities, improvements on current facilities and pedestrian connections.

Part of the Master Plan, UTS Science received another new purpose-built building which opened in 2015. Facilities in the new building include collaborative spaces, advanced specialised labs and a Super lab with over 200 workbenches.

**UTS Science Facilities**

UTS Science has one of the best facilities in Australia. Over $100 million was invested in its current facilities, making it state-of-the-art and comparable to, if not better than those in advanced commercial laboratories. You learn scientific skills in a realistic environment similar to the changing workplace.

Facilities include teaching, learning and advanced specialist facilities in proteomics, forensic and analytical chemistry, environmental sciences, a Chinese medicine outpatient clinic and glasshouse facilities. This purpose-built facility inspires and encourages inquiry learning, enriching your study experiences.

**Revitalised Alumni Green**

Opened in 2014, the UTS Alumni Green has been transformed into a vibrant, tree-lined city space and a meeting place for the university community. It is filled with new, student-focused spaces from grass areas lined by sculptural seating to intimate garden pods where the community can gather in the shade.

**New Science Building**

The new Thomas Street building opened in 2015. It has collaborative and common spaces for teaching, learning and research, and a Super lab with over 200 work benches. It is one of the first few multi-disciplinary Super Labs in the world, where a range of science can be taught simultaneously through advanced AV technology.
SUPER LAB

The state-of-the-art UTS Super Lab is one of a kind in Australia with space for 220 students. It is fitted with touchscreen monitors and microphones, and allows up to twelve different classes to work concurrently.

IMAGE: ANDREW WORSSAM

RESEARCH LABS

Research labs are functionally fitted with diverse range of novel and advanced scientific instruments, such as the OMX Blaze super-resolution imaging system, nuclear magnetic resonance, and advanced scanning and imaging systems.

IMAGE: ANNA ZHU

OMX BLAZE IMAGING SYSTEM

UTS is the first commercial installation site in the world for this exciting new technology. It is used in the study of cell biology of living microorganisms at super-resolution, promising new insights into the behaviour of infectious diseases.
Our learning approach at UTS Science is one that is based on the investigation of questions, scenarios, or problems. Lecturers will facilitate the inquiry learning but you will identify and research issues and questions to develop your knowledge or solutions.

Inquiry learning is aimed at placing you, the students, at the core of your own learning, engaging and stimulating both learning outcomes and self-belief.

Our learning approach also capitalises on our world class facilities and learning support. You are encouraged to apply your knowledge through workshops, case studies, and master classes often facilitated by guest speakers or academics. You will have access to industry networks and opportunities to build real relationships with a diverse range of colleagues.

Research led teaching
UTS Science is a research intensive faculty and contributes about 40 percent of UTS’s total research outputs. It was recently rated as ‘better than world standard’ in the Excellence in Research Australia ratings. Transforming research into practice is the foundation of discovery and our teachings.

Globally connected
Our collaborations and partnerships with other institutions and industry like CSIRO, ANSTO, FEI Company, Agilent Technologies, the Australian Federal Police gives you access to different and diverse perspectives.

Your learning cycle
> UTS helps you to define and articulate your individual learning goals.
> You gain access to ideas and content.
> Live case studies and engagement with mentors allow you to make sense of, and test your ideas.
> Academics, leading professionals and your peers provide feedback on the strength of your learning.
> Finally, you will reflect on what you have learnt and how you have progressed which will position you to set new learning goals.
RESEARCH LED TEACHING

Lecturers are highly qualified and approachable. You have access to current research findings as lecturers are also active researchers.

IMAGE: ANNA ZHU

OFF-CAMPUS LEARNING SITES

UTS Science has off-campus learning sites such as the Stroud Research Station. It provides access to forests, rivers, bugs and animals crucial to our environment-related courses.
Postgraduate education refers to programs that one enrols after the completion of their Bachelor’s degree or undergraduate study. Generally, postgraduate study requires greater independence, where you take the initiative to complete coursework, case studies and undertake research projects. At the completion of your postgraduate study, you will be awarded with either a Masters or PhD degree.

What is the difference between a degree by coursework and research?
A degree by coursework is a program that requires one to do written coursework or written exams. You are required to attend classes and possibly tutorials. There is a set amount of subjects or credit points, you are required to complete, and possibly a research project.

Postgraduate degree by research, also known as higher degree research is a program where you work under the guidance of a supervisor on a mutually agreed research project, normally in the setting of a laboratory. After an intense period of supervised study and research, you will be examined via the submission and presentation of a thesis. You are not required to attend classes, sit for exams or submit coursework.

<table>
<thead>
<tr>
<th>TYPE OF PROGRAMS</th>
<th>DEGREE/PROGRAMS</th>
<th>UTS COURSE CODE</th>
<th>DURATION OF STUDY*</th>
<th>TOTAL CREDIT POINTS (CP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postgraduate Programs by Coursework</td>
<td>Graduate Certificate in Mathematics</td>
<td>C11210</td>
<td>1 year PT</td>
<td>24 CP</td>
</tr>
<tr>
<td></td>
<td>Graduate Certificate in Science</td>
<td>C11216</td>
<td>½ year FT</td>
<td>24 CP</td>
</tr>
<tr>
<td></td>
<td>Master of Science</td>
<td>C04241</td>
<td>1½ years FT</td>
<td>72 CP</td>
</tr>
<tr>
<td></td>
<td>Master of Science (Extension)</td>
<td>C04265</td>
<td>2 years FT</td>
<td>96 CP</td>
</tr>
<tr>
<td></td>
<td>Master of Science (Honours)</td>
<td>C04267</td>
<td>2 years FT</td>
<td>96 CP</td>
</tr>
<tr>
<td>Postgraduate Program by Research</td>
<td>Master of Science (Research)</td>
<td>C03029</td>
<td>2 years FT</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>Master of Science in Mathematical Sciences (Research)</td>
<td>C03026</td>
<td>2 years FT</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>Doctor of Philosophy (PhD)</td>
<td>C02031</td>
<td>4 years FT</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>Doctor of Philosophy in Mathematics (PhD)</td>
<td>C02030</td>
<td>4 years FT</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Note: *FT = Full time and PT = Part time
A postgraduate coursework degree is one you’re required to attend classes and complete a set amount of subjects or credit points.”
GRADUATE CERTIFICATE IN MATHEMATICS

UAC course code: 942743 (Autumn, Spring)
UTS course code: C11210
Duration: 1 year part-time only
Credit points (cp): 24

Designed to cater for graduates of non-mathematical disciplines who wish to broaden their expertise and careers by acquiring mathematical knowledge and skills. The course is suitable for business, engineering or science graduates who need mathematical foundation for further studies. It aims to provide graduates with retraining in mathematics and statistics, and will provide pathways to more advanced mathematical programs.

Course duration
Only offered in part-time.

Completion requires 24 cp of study or 4 subjects, comprising subjects chosen from the following:

**Course structure**
35511 Linear Dynamical Systems
35512 Modelling Change
35513 Statistical Methods
Select one from CBK91011 Electives (Mathematics)
35140 Introduction to Quantitative Management
35212 Computational Linear Algebra
35232 Advanced Calculus
35241 Optimisation in Quantitative Management
35255 Forensic Statistics
35353 Regression Analysis
35363 Stochastic Models
60901 Advanced Communication Skills in Science
60903 Project Management in Science
60904 Innovation, Entrepreneurship and Commercialisation
21929 Positive Psychology and the Self
37161 Probability and Random Variables
21878 Organisational Dialogue: Theory and Practice
26703 Introductory Health Economics
49001 Judgment and Decision Making
49003 Economic Evaluation
49016 Technology and Innovation Management
92296 Epidemiology and Population Health
92603 Managing Quality, Risk and Cost in Health Care
92917 Using Health Care Data for Decision Making

Recognition of prior learning: No exemptions are granted as recognition of prior learning.

Further study at UTS: Upon completion of the Graduate Certificate in Mathematics (C11210), you may enrol in the Master of Science in Mathematical and Statistical Modelling (C04241).

Fees: refer to page 33.

“The lecturers are supportive and professional.”

JOHNNY WONG
Web Analyst, Westpac
Graduate Certificate in Mathematics
GRADUATE CERTIFICATE IN SCIENCE

UAC course code: 940768 (Autumn, Spring)

UTS course code: C11216

Duration: 0.5 years full-time or equivalent part-time

Credit points (cp): 24

Suitable for those seeking a scientific qualification to assist them to gain entry into science, as well as for those who are already employed, but wish to gain new specialised skills to advance their area of expertise.

In addition to providing an opportunity to extend or renew your scientific knowledge, this course aims to provide some broad professional skills important to any career, be it in research, business, industry or government organisations.

Course structure

Select two subjects from the following:

- 60901 Advanced Communication Skills in Science
- 60903 Project Management in Science
- 60904 Innovation, Entrepreneurship and Commercialisation
- 60902 The Scientific Method
- 35212 Computational Linear Algebra (only available to students taking Mathematical subjects)

Select two subjects from the CBK90642 list of science electives, shown in the UTS Online handbook www.handbook.uts.edu.au/sci/

Credit recognition: No exemptions are granted for this course.

Further study at UTS: Upon completion of the Graduate Certificate in Science you will gain full credit recognition of prior learning to the Master of Science (C04241) for any subjects relevant to the specific masters specialisation in which you are enrolled.

Fees: refer to page 33.
This course aims to update science and mathematics graduates with industry-related skills and advanced scientific knowledge for career advancement. It also provides a pathway to a research degree.*

You will develop the skills required to be a scientist or mathematician who can engage at a higher level in an enterprise whether in business, industry, research or government. You will gain analytical skills, disciplinary knowledge, creative and logical approaches to problem-solving and management skills.

The Master of Science is a 72 credit point degree that can be completed either in 1.5 years of full-time study or equivalent. It comprises 24 credit point of professional subjects and 48 credit points of the chosen major.

* Subject to faculty approval and suitable achievement levels.
PROFESSIONAL SUBJECTS are compulsory and provide essential skills for engagement with businesses, research, industries and governments. Skills you will gain include project management, communication skills, management of innovative ventures, management of intellectual property and more.

The MAJOR CHOICE SUBJECTS are essential to advance your skills as a professional scientist or mathematician. You will gain up-to-date scientific knowledge and technologies in your chosen major.

Majors available include:

> Biomedical Engineering
> Forensic Science
> Mathematical and Statistical Modelling
> Marine Science and Management
> Medical Biotechnology
> No specific major


Refer to page 20 to 30 to read more about each specific major and their career opportunities.

Pathway to research degree: All majors provide an opportunity to develop research skills by taking either a 12 or 24 credit point research project. Enrolment into the research project is subject to faculty approval which is dependent on your study achievements and the availability of suitable research projects.

Successful completion of a 24 credit point research project can provide a pathway to a research degree.

Credit recognition: This course may be eligible for credit recognition of up to 24 credit points if the subjects previously studied are deemed by the faculty to be equivalent to those specified for their course.

To be considered for credit recognition, subjects must normally have been completed no more than five years before the commencement of this course.

Students who have completed the Graduate Certificate in Science (C11216) will gain full credit for subjects that are in this course.

Fees: refer to page 33.
MASTER OF SCIENCE (EXTENSION)

UAC course code: refer to page 9.
UTS course code: C04265
Duration: 2 years full-time or equivalent part-time
Credit points (cp): 96

This course aims to renew and broaden your scientific and industry experience with managerial and business acumen.

It will provide you with numerous opportunities including value-add to your existing specialisation by bringing you up to speed on knowledge and technologies, expand into different majors by choosing elective subjects that are of interest, and acquire professional and management skills to succeed in the business community.

The Master of Science (Extension) is a 96 credit point degree that can be completed either in 2 years of full-time study or equivalent.

It comprises 24 credit points of professional subjects, 48 credit points of the chosen major subjects and 24 credit points of electives.

<table>
<thead>
<tr>
<th>SUBJECT NO.</th>
<th>PROFESSIONAL SUBJECTS - COMPULSORY</th>
<th>CREDIT POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>60901</td>
<td>Advanced Communication Skills in Science</td>
<td>6cp</td>
</tr>
<tr>
<td>60903</td>
<td>Project Management in Science</td>
<td>6cp</td>
</tr>
<tr>
<td>60904</td>
<td>Innovation, Entrepreneurship and Commercialisation</td>
<td>6cp</td>
</tr>
<tr>
<td>60902</td>
<td>Select ONE of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Scientific Method</td>
<td>6cp</td>
</tr>
<tr>
<td>35212</td>
<td>Computational Linear Algebra</td>
<td>6cp</td>
</tr>
<tr>
<td>48023</td>
<td>Programming Fundamentals</td>
<td>6cp</td>
</tr>
</tbody>
</table>

Read subjects descriptions at handbook.uts.edu.au/directory/utm90522.html

COURSE STRUCTURE

96CP = 24CP + 48CP + 24CP

Master of Science (Advanced)
or 4 x Professional subjects
or 8 x Major choice subjects
4 x Electives (Science)
PROFESSIONAL SUBJECTS are compulsory and provide essential skills for engagement with businesses, research, industries and governments. Skills you will gain include project management, communication skills, management of innovative ventures, management of intellectual property and more.

The MAJOR CHOICE (SCIENCE) SUBJECTS are essential to advance your skills as a professional scientist or mathematician. You will gain up-to-date knowledge of science and technologies in your chosen major.

Majors available include:
> Biomedical Engineering
> Forensic Science
> Mathematical and Statistical Modelling
> Marine Science and Management
> Medical Biotechnology
> No specific major


Refer to page 20 to 30 to read more about each specific major and their career opportunities.

ELECTIVE SUBJECTS give you the freedom to choose subjects that are of interest to you and provide a third dimension of expertise beyond your chosen major and professional knowledge and skills.

There is a variety of electives to choose from CBK90907 Electives (Science).


Select 24 credit points from the following CBK 90907 Electives (Science) Table:

<table>
<thead>
<tr>
<th>SUBJECT NO.</th>
<th>ELECTIVE SUBJECTS</th>
<th>CREDIT POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>21878</td>
<td>Organisational Dialogue: Theory and Practice</td>
<td>6cp</td>
</tr>
<tr>
<td>22747</td>
<td>Accounting for Managerial Decisions</td>
<td>6cp</td>
</tr>
<tr>
<td>24734</td>
<td>Marketing Management</td>
<td>6cp</td>
</tr>
<tr>
<td>25742</td>
<td>Financial Management</td>
<td>6cp</td>
</tr>
<tr>
<td>26703</td>
<td>Introductory Health Economics</td>
<td>6cp</td>
</tr>
<tr>
<td>49001</td>
<td>Judgment and Decision Making</td>
<td>6cp</td>
</tr>
<tr>
<td>49003</td>
<td>Economic Evaluation</td>
<td>6cp</td>
</tr>
<tr>
<td>49016</td>
<td>Technology and Innovation Management</td>
<td>6cp</td>
</tr>
<tr>
<td>49029</td>
<td>Environmental Policy for Energy Systems</td>
<td>6cp</td>
</tr>
<tr>
<td>49049</td>
<td>Air and Noise Pollution</td>
<td>6cp</td>
</tr>
<tr>
<td>49069</td>
<td>Leadership and Responsibility</td>
<td>6cp</td>
</tr>
<tr>
<td>92050</td>
<td>Policy, Power and Politics in Health Care</td>
<td>6cp</td>
</tr>
<tr>
<td>92296</td>
<td>Epidemiology and Population Health</td>
<td>6cp</td>
</tr>
<tr>
<td>92603</td>
<td>Managing Quality, Risk and Cost in Health Care</td>
<td>6cp</td>
</tr>
<tr>
<td>92606</td>
<td>Issues in Australian Health Services</td>
<td>6cp</td>
</tr>
<tr>
<td>92887</td>
<td>Organisational Management in Health Care</td>
<td>6cp</td>
</tr>
<tr>
<td>92917</td>
<td>Using Health Care Data for Decision Making</td>
<td>6cp</td>
</tr>
<tr>
<td>57084</td>
<td>Information Architecture and Design</td>
<td>8cp</td>
</tr>
<tr>
<td>57100</td>
<td>People, Information and Knowledge</td>
<td>8cp</td>
</tr>
<tr>
<td>91928</td>
<td>People, Work and Employment</td>
<td>8cp</td>
</tr>
<tr>
<td>91929</td>
<td>Positive Psychology and the Self</td>
<td>8cp</td>
</tr>
</tbody>
</table>
Pathway to research degree: All majors provide an opportunity, to develop research skills by taking either a 12 credit point or 24 credit point research project. Enrolment into the research project is subject to faculty approval which is dependent on your study achievements and the availability of suitable research projects. Successful completion of a 24 credit point research project can provide a pathway to a research degree.

Credit recognition: This course may be eligible for credit recognition of up to 36 credit points if the subjects previously studied are deemed by the faculty to be equivalent to those specified for their course. To be considered for credit recognition, subjects must normally have been completed no more than five years before the commencement of this course. Students who have completed the Graduate Certificate in Science (C11216) will gain full credit for subjects that are in this course.

Alternate entry and exit pathways
There are a number of alternate entry and exit pathways into the Master of Science (Extension), should you decide to change direction.

> Gain entry or exit through the Graduate Certificate in Science
> Gain entry or exit through the Master of Science coursework program.
> Exit through the Graduate Diploma in Science, a 48 credit point coursework program.
> Complete a minimum of 48 credit points in the Master of Science (Extension) and transfer into the Master of Science (Honours). Suitable if you’re keen to pursue a postgraduate research degree because at the completion of the Master of Science (Honours), you can proceed to pursue a PhD.

Fees: refer to page 33
What did you personally gain from your studies?
Access and insight into new areas of learning and different ways of thinking, for example, in relation to my Master’s research, the application of logical frameworks within a broader ecological context and the tools and discipline to be able to thoroughly research a subject area.

What was it like to study at UTS Science?
I’m somewhat of an obsessive-compulsive learner (wanting to know the ins and outs of a duck’s bum, as my Mum would say) and a serial studier, so for me it was great. My science studies opened up new worlds (e.g. chemistry, insect morphology, coastal processes etc.), which in turn opened up further new worlds and these are opening up even more new worlds... I wish I could say that I breezed through uni, but frankly, I had to work hard, but that hard work paid off – stimulating my mind and providing opportunities.

What advice can you give to students considering studying this degree?
As far as you can, be strategic with subject choices – tailor coursework to your preferred career goal. And get involved, both on and off campus to advance future work prospects.

“My science studies opened up new worlds which in turn opened up further opportunities.”
Admission: Entry is via internal course transfer from C04241 Master of Science or C04265 Master of Science (Extension)

UTS course code: C04267

Duration: 2 years full-time or equivalent part-time

Credit points (cp): 96

This course is for those who wish to enter into research and academia. It will renew and broaden your scientific and industry experience with managerial and business acumen.

The course provides you with a unique opportunity to undertake research and gain in-depth knowledge in a particular scientific specialisation. You will acquire professional and management skills to succeed in the business community. It will also value-add to your existing specialisation or degree, where you are brought up to speed on knowledge and technologies in that particular specialisation.

The Master of Science (Honours) is a 96 credit point degree that can be completed either in 2 years of full-time study or equivalent. It comprises 24 credit points of professional subjects, 24 credit points of the chosen major subjects and 48 credit points of Honours thesis.

COURSE STRUCTURE

\[ 96_{CP} = 24_{CP} + 24_{CP} + 48_{CP} \]

Master of Science (Honours) or 4 x Professional subjects or 4 x Science major choice subjects Honours thesis

<table>
<thead>
<tr>
<th>SUBJECT NO.</th>
<th>PROFESSIONAL SUBJECTS – COMPULSORY</th>
<th>CREDIT POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>60901</td>
<td>Advanced Communication Skills in Science</td>
<td>6cp</td>
</tr>
<tr>
<td>60903</td>
<td>Project Management in Science</td>
<td>6cp</td>
</tr>
<tr>
<td>60904</td>
<td>Innovation, Entrepreneurship and Commercialisation</td>
<td>6cp</td>
</tr>
</tbody>
</table>

Select ONE of the following:
- The Scientific Method
- Computational Linear Algebra
- Programming Fundamentals

6cp

6cp

6cp

Read subjects descriptions at handbook.uts.edu.au/directory/stm90522.html

The SCIENCE MAJOR CHOICE (HONOURS) SUBJECTS are essential to advance your skills as a professional scientist or mathematician. You will gain up-to-date scientific knowledge and technologies in your chosen major.

You have vast major choices which include:
- Biomedical Engineering (Honours)
- Forensic Science (Honours)
- Mathematical and Statistical Modelling (Honours)
- Marine Science and Management (Honours)
- Medical Biotechnology (Honours)

View CBK90908 Science major choice (Honours) at www.handbook.uts.edu.au/directory/cbk90908.html

Refer to page 20 to 30 to read more about each specific major and their career opportunities.
The HONOURS THESIS COMPONENT is a research project that extends over the final year and normally takes the form of an experimental, analytical or theoretical investigation. You may be required to undertake one or more critical reviews of the literature in designated areas and to attend formal classes devoted to advanced coursework. The results of the project are presented in an oral seminar and in a written thesis, both of which are formally assessed.


View current honours projects on offer at www.uts.edu.au/future-students/science/go-further/honours-program

Pathway to research degree: Upon completion of the Master of Science (Honours) you can proceed to a UTS PhD.

Credit recognition: This course may be eligible for credit recognition of up to 36 credit points if the subjects previously studied are deemed by the faculty to be equivalent to those specified for their course.

To be considered for credit recognition, subjects must normally have been completed no more than five years before the commencement of this course.

Students who have completed the Graduate Certificate in Science (C11216) will gain full credit for subjects that are in this course. Admission is via internal course transfer.

Local students who have completed an undergraduate qualification and satisfied the admission criteria for entry into the standard honours program may be considered for direct entry.

Future students who are keen to apply will need to complete the Faculty’s Supplementary Honours Application Form and organise a supervisor and project.

Eligibility for admission does not guarantee offer of a place. Refer to page 37 for more details on admission requirements.

Fees: refer to page 33.
Postgraduate coursework programs you can pursue this major in:
> Master of Science, C04241
> Master of Science (Extension), C04265
> Master of Science (Honours), C04267

Biomedical engineering is the application of science and engineering principles to solve medical and biological problems. This aim of this major is to introduce you to a variety of applications around biomechanics, medical devices, tissue engineering, medical imaging, and diagnostic and therapeutic uses of nanotechnology.

The structure gives you wide exposure across the field of biomedical engineering rather than focusing on one specific area.

This major is suitable for science or medical graduates who wish to bridge their knowledge gap in medical technologies without a full engineering degree. It's an innovative major with wide application in growing areas in health, science and engineering.

An example of current biomedical engineering research at UTS is the development of bio-inspired and biomaterials where corals are being investigated for bone and tissue regeneration.

**Careers**

This major prepares graduates for careers in medical device and biotechnology companies, government policy and regulation, hospitals and research organisations where the ability to combine biology and engineering knowledge and skills is required.
### COURSE STRUCTURE

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#MAJ03470 Biomedical Engineering
(for Master of Science and Master of Science Extension)

49261 Biomedical Instrumentation

CBK90867 Biomedical Engineering stream choice 12cp

Select 30 credit points from the following options:
- 91239 Human Pathophysiology
- 91703 Physiological Systems
- 91708 Medical and Applied Physiology
- 27174 Analysis of Human Motion
- 91403 Medical Imaging
- 68075 Nanomaterials
- 67509 Molecular Nanotechnology
- 91705 Medical Devices and Diagnostics
- 91140 BioNanotechnology
- 49275 Neural Networks and Fuzzy Logic
- 48023 Programming Fundamentals
- 91560 Tissue Engineering Scaffolds
- 91171 Biomedical Engineering Project A 12cp
- 91172 Biomedical Engineering Project B 12cp
- 91173 Biomedical Engineering Project 24cp

#MAJ01135 Biomedical Engineering (Honours)
(for Master of Science (Honours)

49261 Biomedical Instrumentation

CBK90867 Biomedical Engineering stream choice 12cp

Select 6 credit points from the following options:
- 27174 Analysis of Human Motion
- 48023 Programming Fundamentals
- 49275 Neural Networks and Fuzzy Logic
- 67509 Molecular Nanotechnology
- 68075 Nanomaterials
- 91140 BioNanotechnology
- 91239 Human Pathophysiology
- 91403 Medical Imaging
- 91703 Physiological Systems
- 91708 Medical and Applied Physiology
- 91705 Medical Devices and Diagnostics
MAJOR: FORENSIC SCIENCE

Postgraduate coursework programs you can pursue this major in:
> Master of Science, C04241
> Master of Science (Extension), C04265
> Master of Science (Honours), C04267

The forensic science major gives you the opportunity to broaden your knowledge and skills in forensics investigation and analysis. You will gain in-depth understanding of methods and techniques used in forensics investigations.

This major contains subjects in both physical forensic sciences and biological forensic sciences, which means you can specialise in either forensic biology or forensic chemistry, or a combination of both. The ability to successfully undertake these subjects is influenced by your prior studies, and you should seek advice from the program adviser to plan a program of study that is best suited to your background and interests.

This major is suitable for students seeking a forensic qualification as entry into the field, or wish to gain new specialised skills in a range of theoretical and practical applications to advance your area of expertise and career prospects.

Careers
Graduates can find employment with government or private organisations including police forensic laboratories, law enforcement agencies, government or private forensic or drug detection labs, customs and border protection agencies and environmental protection agencies.

COURSE STRUCTURE

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<td>or</td>
<td>4 x forensic science (hons) major subjects (MAJ01132)#</td>
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MAJ01123 Forensic Science
(for Master of Science and Master of Science Extension)
Read subject descriptions at www.handbook.uts.edu.au/directory/maj01123.html

Completion requirements
65034 Introduction to Forensic Science

Select 42 credit points from the following options:
CBK90640 Elective
65342 Crime Scene Investigation
65544 Chemical Criminalistics
65545 Forensic Toxicology
35255 Forensic Statistics
91137 DNA Profiling
91138 Investigation of Human Remains
65412 Physical Evidence
65643 Chemistry and Pharmacology of Recreational Drugs
65644 Fire and Explosion Investigation
91402 Anatomical Pathology
65863 Expert Evidence Presentation
65743 Complex Forensic Cases (Chemistry)
91139 Complex Forensic Cases (Biology)

65032 Forensic Science Research Project A 12cp
65033 Forensic Science Research Project 24cp
91548 Forensic Biology Research Project A 12cp
91549 Forensic Biology Research Project 24cp
91132 Molecular Biology 1
65072 Forensic Science Research Project B 12cp
91550 Forensic Biology Research Project B 12cp
60910 Directed Study A
60911 Directed Study B

MAJ01132 Forensic Science (Honours)
(for Master of Science (Honours))
Read subject descriptions at www.handbook.uts.edu.au/directory/maj01132.html

Select 24 credit points from the following options:
65743 Complex Forensic Cases (Chemistry)
65863 Expert Evidence Presentation
65643 Chemistry and Pharmacology of Recreational Drugs
65644 Fire and Explosion Investigation
35255 Forensic Statistics
65544 Chemical Criminalistics
65545 Forensic Toxicology
79028 Complex Forensic Cases (Law for Biology)
91137 DNA Profiling
91138 Investigation of Human Remains
91139 Complex Forensic Cases (Biology)
65342 Crime Scene Investigation
65034 Introduction to Forensic Science

“The thing that I love the most about my degree is learning from people who have had extensive experience working in the field.”

CASSANDRA KAVANAGH
Master of Science (Forensic Science)
Postgraduate coursework programs you can pursue this major in:
> Master of Science, C04241
> Master of Science (Extension), C04265
> Master of Science (Honours), C04267

The medical biotechnology major will broaden your appreciation of the synergies between modern technologies that shape the diverse aspects of medicine (e.g. vaccines, therapy, cancer, diabetes), food production and industry.

You will gain insights into the rapidly evolving technologies and methods scientists use to produce this new generation of pharmaceuticals, vaccines, etc.

This major is suitable for those seeking an additional qualification as entry into the field, or wish to gain new specialised skills to hone your area of expertise and your prospects for advancement to more senior positions.

Alternatively, you may choose this course to re-skill and change careers completely or just for personal interest.

### Careers
Graduates in this major will find employment in pharmaceutical and biotechnology companies, hospital and diagnostic, medical and research laboratories.

### COURSE STRUCTURE

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Honours thesis
*MAJ01121 Medical Biotechnology
for Master of Science and Master of Science Extension)
Read subject descriptions at
www.handbook.uts.edu.au/
directory/maj01121.html
91535 Microscopy and Cytometry
91536 Proteomics
Select 36 credit points from the following options:
CBK90640 Elective
91345 Biochemistry, Genes and Disease
91352 Parasitology
91705 Medical Devices and Diagnostics
91368 Bioreactors and Bioprocessing
91707 Pharmacology 1
91335 Molecular Biology 2
91359 Advanced Immunology
91344 Medical and Diagnostic Biochemistry
91369 Biobusiness and Environmental Biotechnology
91537 Biotechnology Research Project A 12cp
91538 Biotechnology Research Project B 12cp
91539 Biotechnology Research Project 24cp
60910 Directed Study A
60911 Directed Study B
91709 Pharmacology 2
CBK90682 Options

#MAJ01131 Medical Biotechnology (Honours)
(for Master of Science (Honours))
Read subject descriptions at
www.handbook.uts.edu.au/
directory/maj01131.html
91535 Microscopy and Cytometry
91536 Proteomics
Select 12 credit points from the following options: 12cp
60910 Directed Study A
60911 Directed Study B
91335 Molecular Biology 2
91344 Medical and Diagnostic Biochemistry
91345 Biochemistry, Genes and Disease
91352 Parasitology
91359 Advanced Immunology
91368 Bioreactors and Bioprocessing
91369 Biobusiness and Environmental Biotechnology
91705 Medical Devices and Diagnostics
91707 Pharmacology 1
91709 Pharmacology 2
MAJOR: MARINE SCIENCE AND MANAGEMENT

Postgraduate coursework programs you can pursue this major in:
> Master of Science, C04241
> Master of Science (Extension), C04265
> Master of Science (Honours), C04267

This is a cross institutional and multi-disciplinary major that combines professional and marine science subjects to ensure you acquired skills to be a qualified marine scientist who can engage in research, practice commercially or manage an organisation.

It offers you the unique opportunity to enrol at UTS, complete the capstone unit at the Sydney Institute of Marine Science (SIMS) and then take two elective subjects at one of SIMS’s partner universities.

Developed in collaboration with SIMS and its four partners, namely UTS, the University of Sydney, Macquarie University and the University of New South Wales, you’ll have access to a group of highly regarded marine scientists from these institutions.

You’ll undertake core units at UTS, and have the opportunity to take electives at one of the partner universities.

The capstone unit will be taught by scientists from the four partner universities at SIMS. It comprises a lecture series and practical component using real-life data from the Australian Integrated Marine Observatory System.

The distinctive feature of this program at UTS, is that it not only trains you to be a skilled marine scientist but also gives you good managerial skills such as communication skills, project management, commercialization and entrepreneurship.

Careers
Graduates can excel in private or public agencies globally, as private consultants in fields such as policy and conservation, fisheries, environmental sustainability and management, impact assessment, tourism and education. You can also re-skilled and change careers completely, or develop a specialist area of expertise and personal interest.

COURSE STRUCTURE

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Honours thesis

Graduates can excel in private or public agencies globally, as private consultants in fields such as policy and conservation, fisheries, environmental sustainability and management, impact assessment, tourism and education. You can also re-skilled and change careers completely, or develop a specialist area of expertise and personal interest.
* MAJ01130 Marine Science and Management
(for Master of Science and Master of Science Extension)
Read subject descriptions at www.handbook.uts.edu.au/directory/maj01130.html
91146 Topics in Australian Marine Science
91165 External Marine Study 1
91166 External Marine Study 2
Select 30 credit points from the following options:
91157 Marine Communities
91118 Fisheries Resources
66513 Marine Geosciences
91126 Coral Reef Ecosystems
91156 Marine Productivity and Climate Change
91540 Climate Change and Ecological Modelling
91541 Monitoring Ecological Variability
91545 Environment Research Project A 12cp
91546 Environment Research Project B 12cp
91547 Environment Research Project 24cp

# MAJ01134 Marine Sciences and Management (Honours)
(for Master of Science (Honours))
Read subject descriptions at www.handbook.uts.edu.au/directory/maj01134.html
91165 External Marine Study 1
91166 External Marine Study 2
91146 Topics in Australian Marine Science
Select 6 credit points from the following options:
66513 Marine Geosciences
91118 Fisheries Resources
91126 Coral Reef Ecosystems
91156 Marine Productivity and Climate Change
91157 Marine Communities
91150 Climate Change and Ecological Modelling
91541 Monitoring Ecological Variability
MAJOR: MATHEMATICAL AND STATISTICAL MODELLING

Postgraduate coursework programs you can pursue this major in:
> Master of Science, C04241
> Master of Science (Extension), C04265
> Master of Science (Honours), C04267

This major highlights logistic, statistical, analytic tool and modelling skills. You will gain disciplinary knowledge, creative and logical approaches to problem-solving, and management skills to administer in an organisation.

This major is suitable if you are seeking a mathematics qualification as entry into the field, or wish to gain new specialized skills in a range of theoretical and practical applications to advance your area of expertise and career, or to reskill and change careers.

Careers
Mathematicians find careers in a diverse range of organisations and industries such as banking, finance, health, market research and information technology. Graduates from other disciplines such as business may advance their career prospects by increasing their specialised mathematical expertise.

COURSE STRUCTURE

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<td>Master of Science (Honours)</td>
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**MAJOR:** MATHEMATICAL AND STATISTICAL MODELLING
**MAJ01124 Mathematical and Statistical Modelling**

(for Master of Science and Master of Science Extension)


Select 48 credit points from the following options:

- CBK90640 Elective
- 35231 Differential Equations
- 35252 Mathematical Statistics
- 35322 Advanced Analysis
- 35340 Quantitative Management Practice
- 35342 Nonlinear Methods in Quantitative Management
- 35344 Network and Combinatorial Optimisation
- 35353 Regression Analysis
- 35355 Quality Control
- 35356 Design and Analysis of Experiments
- 35361 Stochastic Processes
- 35366 Numerical Methods of Finance
- 35502 Seminar A
- 35503 Seminar B
- 35504 Seminar C
- 35505 Seminar D
- 35112 Mathematical Research Project A 12cp
- 35113 Mathematical Research Project B 12cp
- 35114 Mathematical Research Project 24cp
- 35364 Statistics for Quantitative Finance
- 35365 Stochastic Calculus in Finance
- 35393 Seminar (Statistics)
- 37451 Multivariate Data Analysis

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**#MAJ01133 Mathematical and Statistical Modelling (Honours)**

(for Master of Science (Honours))


Select 24 credit points from the following options:

- 35231 Differential Equations
- 35252 Mathematical Statistics
- 35232 Advanced Calculus
- 35342 Nonlinear Methods in Quantitative Management
- 35344 Network and Combinatorial Optimisation
- 35383 Programming for Mathematical Modelling and Data Analysis
- 35355 Quality Control
- 35356 Design and Analysis of Experiments
- 35361 Stochastic Processes
- 35364 Statistics for Quantitative Finance
- 35365 Stochastic Calculus in Finance
- 35335 Mathematical Methods
- 35393 Seminar (Statistics)
- 35391 Seminar (Mathematics)
Postgraduate coursework programs you can pursue this major in:
> Master of Science, C04241
> Master of Science (Extension), C04265

By not choosing a major or specialisation, you can combine specialist subjects from various majors, according to your interests in the relevant subjects. This major gives you the flexibility to craft your own degree according to your interests and career paths.

This major is suitable for those seeking a scientific qualification as entry into the field, or wish to gain new specialised skills in a range of theoretical and practical applications to advance your area of expertise. You will graduate with an award in the Master of Science.

**Careers**
Graduates will find vast employment opportunities depending on the focus of their study program and prior background. The broader knowledge and skills you gain in this major are highly valuable to many employers from both science based-organisations and non-science based industries.

**COURSE STRUCTURE**

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Select 48 credit points from the following options:

- 60909 Professional Science Project 12cp
- 91535 Microscopy and Cytometry
- 91368 Bioreactors and Bioprocessing
- 91705 Medical Devices and Diagnostics
- 91369 Biobusiness and Environmental Biotechnology
- 91560 Climate Change and Ecological Modelling
- 91541 Monitoring Ecological Variability
- 91156 GIS and Remote Sensing
- 91551 Ecohydrology and Climate Change
- 91157 Marine Communities
- 91116 Wildlife Ecology
- 91118 Fisheries Resources
- 66513 Marine Geosciences
- 91309 Biodiversity Conservation
- 91542 Principles of Contaminated Site Assessment
- 91543 Evaluation of Contaminant Effects
- 91544 Environment Risk Assessment and Remediation
- 68044 Characterisation of Energy Efficient Materials
- 68002 Advanced Nanomaterials
- 68001 Advanced Physics
- 68513 Optics and Nanophotonics
- 68320 Scanning Probe and Electron Microscopy
- 68415 Measurement and Analysis of Physical Processes
- 68416 Computational Physics
- 68606 Solid-state Science and Nanodevices
- 68316 Applied Electronics and Interfacing
- 67509 Molecular Nanotechnology
- 68413 Quantum Physics
- 68315 Imaging Science
- 65034 Introduction to Forensic Science
- 65342 Crime Scene Investigation
- 65544 Chemical Criminalistics
- 65545 Forensic Toxicology
- 35255 Forensic Statistics
- 91137 DNA Profiling
- 91138 Investigation of Human Remains
- 65412 Physical Evidence
- 65643 Chemistry and Pharmacology of Recreational Drugs
- 65644 Fire and Explosion Investigation
- 91402 Anatomical Pathology
- 65863 Expert Evidence Presentation
- 65743 Complex Forensic Cases (Chemistry)
- 91139 Complex Forensic Cases (Biology)
- 79028 Complex Forensic Cases (Law for Biology)
- 35212 Computational Linear Algebra
- 35231 Differential Equations
- 35252 Mathematical Statistics
- 35322 Advanced Analysis
- 35340 Quantitative Management Practice
- 35342 Nonlinear Methods in Quantitative Management
- 35344 Network and Combinatorial Optimisation
- 35353 Regression Analysis
- 35355 Quality Control
- 37459 Multivariate Data Analysis
- 35365 Stochastic Calculus in Finance
- 35393 Seminar (Statistics)
- 35361 Stochastic Processes
- 35366 Numerical Methods of Finance
- 35502 Seminar A
- 35503 Seminar B
- 35504 Seminar C
- 35505 Seminar D
- 35364 Statistics for Quantitative Finance
- 35356 Design and Analysis of Experiments
- 91545 Environment Research Project A 12cp
- 68046 Physics Research Project A 12cp
- 68047 Physics Research Project B 12cp
- 68048 Physics Research Project 24cp
- 91546 Environment Research Project B 12cp
- 91547 Environment Research Project 24cp
- 91548 Forensic Biology Research Project A 12cp
- 91549 Forensic Biology Research Project 24cp
- 91550 Forensic Biology Research Project B 12cp
- 35112 Mathematical Research Project A 12cp
- 35113 Mathematical Research Project B 12cp
- 35114 Mathematical Research Project 24cp
- 91537 Biotechnology Research Project A 12cp
- 91538 Biotechnology Research Project B 12cp
- 91539 Biotechnology Research Project 24cp
- 65032 Forensic Science Research Project A 12cp
- 65033 Forensic Science Research Project B 12cp
- 65072 Forensic Science Research Project 24cp
- 91709 Pharmacology 2
CECILIA ERIKSSON
Master of Science
Home Country: Swedish
Master of Science in Marine Science and Management

What did you do before you started your course?
A few years back I completed a Bachelor in Marine Biology and an Honours degree in Environmental Science. After completing my degrees I got caught up in a retail job while focusing on sorting out my permanent residency here in Australia.

What motivated you to study this degree/major?
After gaining my permanent residency, I went back home to Sweden for a well-needed holiday. During that break I started making a five-year career plan for myself. I realised I needed to gain a competitive edge to get where I wanted to get with my career and reach my goals. On my return to Sydney I contacted my old supervisor from my Honours degree at UTS for some advice. He informed me of a new Master degree based at UTS and the Sydney Institute of Marine Science (SIMS), which I straight away knew was a perfect match for me.

What do you enjoy most about your degree?
The unique opportunity to undertake subjects not only at UTS, but also at SIMS and any of the other partner universities included in this degree.

What did you personally gain from your studies?
Besides all the new knowledge, I also gained the confidence needed to make me feel ready to go straight into a position in my field. This degree involved a lot of relevant skills, and not just theory.

Why did you choose to study at UTS?
Having completed two other degrees in previous years at UTS that I was really happy with, I knew I could expect teaching of high quality by choosing UTS again, which was really important to me. The location of the university is also perfect for me, being so close to central station.

What is it like to study at UTS Science?
You can expect a high standard of all the facilities and very knowledgeable and approachable staff.

“You can expect a high standard of all the facilities and very knowledgeable and approachable staff.”
HOW TO APPLY FOR POSTGRADUATE COURSEWORK PROGRAMS

STEP ONE
Conduct your research
Find out what courses or majors are available.

What are the financial implications?
Fees: www.sau.uts.edu.au/fees/
Fee Help is a government loan scheme that assists eligible local students to pay their tuition fees.
Visit www.goingtouni.gov.au or ring 1800 020 108
Scholarships:
www.sciencescholarships.uts.edu.au

STEP TWO
Register to attend Postgraduate Info Session
Discuss your study options with Program Directors.
Check your eligibility against the entry requirements for the course.

STEP THREE
Local Applicants*
Apply in person at a Postgraduate Info Session, OR
Apply online through the Universities Admission Centre (UAC) www.uac.edu.au.
UAC offers year-round admissions which means you can apply from September until August the following year in a single application.

Need Help?
UTS STUDENT CENTRE
Telephone: 1300 ASK UTS (1300 275 887)
Online enquiry: www.ask.uts.edu.au

International Applicants*
Apply directly to UTS International, OR
Apply in person at a Postgraduate Info Session.

Need Help?
UTS INTERNATIONAL
Telephone within Australia: 1800 774 816
Telephone outside Australia: +613 9627 4816
Email: international@uts.edu.au
Web: www.uts.edu.au/future-students/international

Note:
*Local applicants = Australian citizens or permanent residents of Australia or New Zealand.
*International applicants = non-Australian citizens or non-permanent residents of Australia or New Zealand.

International applicants
Applicants who are not citizens or permanent residents of Australia or citizens of New Zealand must apply as international students directly through UTS International. This applies for both postgraduate coursework programs and research programs.
For details of international application closing dates, visit:
www.uts.edu.au/international
For details of international student fees, visit: www.uts.edu.au/international/prospective/studying/fees
Phone outside Australia +61 3 9627 4816
Freecall within Australia 1800 774 816
Email: international@uts.edu.au
Website: www.uts.edu.au/international
UTS is one of only three Australian Universities to receive a ‘well above world standard’ rating* in environmental science, which shows the depth of our biological expertise in both human and animal infectious diseases as well as our unique niche in plant functional biology.

In the recent ERA report, UTS Science was awarded ratings from world standard to well above world standard in every research area assessed.

UTS Science has a strong research culture and excellent record in research development, which is essential to facilitate quality higher degree research programs.

It contributes approximately 40 per cent of UTS total research activities and outputs. Its research focuses on increasing impacts and meeting the needs of the community and society, with outcomes that change lives.

Examples of such research include the invention of a more accessible diagnostic kit for cystic fibrosis, and the development of eco-friendly pesticide using ant venoms and many more.

UTS Science has a strong research culture and excellent record in research development, which is essential to facilitate quality higher degree research programs.

LEARNING WITH THE BEST

Our researchers engage in a wide spectrum of research with remarkable outcomes that are valuable to the quality of our life, both socially and economically.

Examples include treating type 2 diabetes through gene therapy by using the liver instead of the pancreas as a surrogate system to produce insulin. Currently this research is progressing to testing on human cells after successful testing in animal models.

We’ve also developed and improved the mechanical properties of a carbon-based material, called ‘graphene’ which can be made as thin as paper, but possesses ten times the strength of steel. The potential is enormous as it can revolutionise numerous industries, including the automotive, aviation, electrical and optical industries.

WORLD-CLASS FACILITIES

We ensure our students and researchers are supported with the latest technologies and equipment, by investing in cutting edge technology, making our science facility one of the best in Australia with impressive suites of specialised advanced technologies ranging from PC2 laboratories, to electron microscopes, and the first ever elemental bio-imaging labs. Most of these technologies are one of a kind, and are only available commercially in large organisations such as CSIRO or ANSTO.

In 2015 UTS Science opened a purpose-built building to add to its existing facilities, which is to cater for its expansion and growth.

QUALITY SUPPORT AND LEARNING RESOURCES

We offer comprehensive support systems to research students which include regular workshops, online resources, English language and literacy teaching, academic development programs, intercultural education, and competitive funds for travel and student conferences.

* The Excellence in Research for Australia (ERA) report released by the Federal government, 2012, the next one will be released at the end of 2015.
UTS Science has been rated “better than world standard” in the Australian Research Council’s full evaluation of the Excellence in Research for Australia (ERA) initiative.

The report released in December 2012, provides the outcomes of the ERA 2012 evaluations, which reviewed and rated environmental sciences and agricultural and veterinarian science research at UTS at the top rating of five for research conducted between 2005 and 2010.

The Dean of Science, Professor Bruce Milthorpe said “This is the highest ERA rating and we received it in ERA 2010 and ERA 2012 for Agricultural and Vet Sciences. In Environmental Sciences there were only two other institutions to receive a five in this ERA round.”

“This achievement is testament to the talent and dedication of our researchers and continues to be a great strength for the Faculty,” Professor Milthorpe said.

Associate Dean Research and Development, Professor Greg Skilbeck said this outstanding rating highlights the calibre of research being conducted within UTS Science.

“UTS is known for its relevant, cutting edge research. These recent ERA results demonstrate that UTS Science is delivering world standard research and above, and this is to continue into the future.”

The next ERA review will be in 2015.
RESEARCH THEMES AT UTS SCIENCE
WHAT AREAS CAN I CONDUCT RESEARCH AND PURSUE MY STUDIES AT UTS SCIENCE?

UTS Science has a dynamic research culture, where activities are conducted through research strengths, centres and units. We encourage you to explore each research area on the appropriate website to better understand their focus and expertise.

- **Plant Functional Biology and Climate Change Cluster (C3)**
  C3’s diverse group of researchers include plant physiologists, ecologists, biological and physical modellers, remote sensing specialists, mathematicians and many more. It brings together a group of like-minded researchers with the aim of developing an understanding of the processes regulating surface-atmosphere and gas exchange to improve and enhance predictions about climate change. Visit [www.c3.uts.edu.au](http://www.c3.uts.edu.au)

- **ithree institute (i3)**
  i3 researchers practise innovative science by using a systems biology approach to develop greater insight into basic biology and its application to the diagnosis, treatment and prevention of infectious diseases. Researchers are focused on understanding and controlling infectious diseases in humans and animals. Visit [www.ithreeinstitute.uts.edu.au](http://www.ithreeinstitute.uts.edu.au)
Materials and Technology for Energy Efficiency (MTEE)

MTEE’s expertise and capabilities tackle challenges in materials research for energy efficiency applications, which include solid state lighting, electro-chemical energy storage, photovoltaics, plasmonics, daylighting physics and related computational modelling.

A key strength of MTEE is its cutting-edge research on critical issues emerging in this field and its immediate goal is to develop practical solar powered lighting with the aim of taking all domestic lighting off the electricity grid for a safe, affordable and efficient lighting to communities in developing countries without access to the electricity grid. Visit www.mtee.uts.edu.au

Centre for Environmental Sustainability (CEnS)

CEnS examines the impact of natural and human-induced stresses on our environment, generating methods and information to develop sustainable resource management – which is a top national research priority in Australia. Visit www.ecology.uts.edu.au

Centre for Forensic Science (CFS)

CFS researchers are high-calibre forensic scientists with international reputations for their training and practical solutions in crime and terrorism prevention and solution. Researchers have a wide spectrum of expertise ranging from fingerprint detection and fire investigation, to drug and toxicology investigations. Visit www.forensics.uts.edu.au

Institute for Nanoscale Technology (INT)

INT brings together cross-disciplinary researchers from mathematicians to biologists in its research activities. The group aims to enhance the possibilities of light and its interaction with matter, to understand, analyse, develop, characterise and exploit nanoscale, mesoscale and microscale materials and structures to develop useful optical and chemical functions. Visit www.nano.uts.edu.au

Centre for Clean Energy Technology (CCET)

CCET focuses on the development of efficient devices for energy harvesting, storage, and conversion. Taking a rational approach, CCET combines principles of calculation, modelling, novel materials architecture and design, synthesis and system integration in its research practices. Its focus is to achieve a low carbon energy context globally through innovations and breakthroughs with zero-emission energies. Visit www.cleanenergy.uts.edu.au
RESEARCH THEMES AT UTS SCIENCE

Centre for Compassionate Conservation (CfCC)
CfCC is the first of its kind in the world, as it explicitly focuses on improving the welfare of wild animals using Compassionate Conservation approaches. It is an innovative, research, education and advisory centre. It aims to build synergy between conservation and animal welfare sciences to tackle the interlinked challenges of conserving populations and caring for individual wild animals. Visit www.compassionateconservation.uts.edu.au

Advanced Tissue Regeneration and Drug Delivery Group
The goal of the Group is to develop novel biomaterials on both synthetic and biomimetic materials for applications in drug delivery and bone or cartilage tissue engineering. It is accomplished by developing several isolation or purification tools and processing methods, allowing the fabrication of integrated biomaterials. Visit www.science.uts.edu.au/future/

The Health Psychology Unit (HPU)
HPU is an independent research unit within UTS Science. It conducts research on various areas related to psychological aspects of health, providing a range of free services such as psycho-educational programs for teenagers, public seminars and distribution of psycho-educational materials. Visit www.hpu.uts.edu.au

Centre for Health Technologies (CHT)
CHT brings together interdisciplinary research and development skills in the creation of medical devices and systems that are unique in Australia. CHT has two research streams: biomedical devices and biotechnology science. It focuses on health and disease processes, the development of new devices, advanced methods for the early detection, diagnosis and rehabilitation of cardiovascular disease, diabetes, neurological disorders and cancer. Research has already produced several new device technologies which are at the cutting edge of biomedical engineering and science. Visit www.science.uts.edu.au/future/

Quantitative Finance Research Group (QFRG)
QFRG brings together the largest group of quantitative finance researchers in Australia, and is recognised as one of the leading centres for this discipline in the Asia-Pacific region. The group focuses on financial risk management and the associated quantitative methods, such as simulation techniques in finance, financial optimisation, credit risk, financial econometrics and market design issues. Visit www.science.uts.edu.au/future/

PICK YOUR DISCIPLINE, DO YOUR RESEARCH

Beyond these research areas, you can choose from a wide range of research areas to pursue at UTS Science.

Examples of research areas include applied chemistry, toxicology, applied physics including image processing and analysis, aquatic ecology, biotechnology, climate change, computational number theory, ecology, ecotoxicology, environmental science, experimental design, data analysis, forensic science, gene therapy, health technologies, immunology, marine studies, mathematics, statistics; medical and biomedical science, microbiology, nanotechnology, nano science, neurotoxins, numerical integration, photonic crystals, plant tissue culture, quantitative finance, scheduling theory, traditional Chinese medicine, water and environmental resource management.
Examples of research projects conducted by our researchers and students that will change our world:

> Use of gene therapy to treat diabetes, using the liver as a surrogate system to ‘teach’ livers of diabetics to produce insulin instead of relying on the pancreas where it is normally produced.

> Development of innovative treatments to fight prostate cancer without harming healthy cells.

> Development of a ‘diagnostic kit’ for cystic fibrosis sufferers which is accessible, inexpensive and less time consuming. This has led to commercialisation.

> Development of a new method to create high-quality crystallised materials which can be used to produce more efficient light emissions product.

> Development of innovative new cooling products from paints to radiative cooling, using natural lights more efficiently as an effective and sustainable energy source.

> Development of an innovative method accurately mapping deposits of trace metals in brain cells which can unlock the causes of degenerative brain diseases like Alzheimer’s and Parkinson’s, opening up massive potential to trace other diseases.

> Forensic DNA profiling in the criminal justice system including DNA statistics.

> Illicit drug profiling for intelligence and evidence purposes.

> Using novel methods to detect biochemical changes following exposure to toxic and carcinogenic substances.

> Mechanisms of settlement success in coral reef fish.

> Understanding invasive species and how naturalised plants can become successful invaders.

> Seagrass tolerance of oil spills and scaling of pollution impacts.

> Coal-ash as a resource for sustainable soil-management in plant production systems.

> Relationships among water-use efficiency, climate and hydraulic architecture of Australian trees.

> Choice experiments to improve predictive power for policy makers.

> Investigating linkages among individual decision-rules, properties of experimental designs and choice models in environmental economics applications.

> Modelling the choices of individuals.
RESEARCH PROGRAMS
AT UTS SCIENCE

DOCTOR OF PHILOSOPHY

UTS code: C02031 [Science] C02030 [Mathematics]

Duration: 4 years full-time or 8 years part-time

You will acquire research skills and deepen your knowledge in your chosen area of science or mathematics. The PhD is a University-wide degree that involves an intense period of supervised study and research culminating in the submission of a thesis. The degree is awarded to candidates who, through original investigation, make a distinct and significant contribution to knowledge in their field of specialisation.

Mode of delivery

You will work under the guidance of a supervisor who is a full-time academic staff member of the Faculty. You may be required to take a prescribed subject in research methodology or any other subject deemed necessary by your principal supervisor. In addition to work on your research project, you will be expected to undertake extra activities in consultation with your supervisor to enhance and develop your skills as a researcher. These activities will be documented each year in the form of a doctoral study plan.

You are also required to submit, in consultation with your supervisor(s), a progress report at the end of each semester, and to complete an assessment task at the end of each year of candidacy.

Applications requirements

> An Honours degree class 1 or 2[1]; or a recognised Research Masters degree
> Selection criteria for admission also include the quality of the research project proposal, the Faculty’s ability to offer appropriate supervision in the applicant’s chosen field, and where necessary, demonstration of necessary technical skills.
> English proficiency requirement for international students or local applicants with international qualifications is: IELTS: 6.5 overall with a writing score of 6.0; TOEFL: paper based: 575 overall with TWE of 4.5, internet based: 90 overall with a writing score of 21; DEEP: C

How to apply

Apply through the University Graduate School, visit www.gradschool.uts.edu.au

For a step by step guide in applying for a research degree at UTS Science, visit www.science.uts.edu.au/future

It is highly suggested that you contact the Faculty’s Research Office to discuss your research ideas, find potential supervisors and information on scholarships, fees and student support. Refer to page 44.
REBECCA WOOD

What degree are you studying?
Doctor of Philosophy in Science (PhD)

Describe your research project
Herbicides used for weed control in agriculture are regularly detected in rivers draining into the Great Barrier Reef at levels that may pose a risk to aquatic organisms. I want to determine whether herbicides are a threat to photosynthetic freshwater organisms such as benthic (bottom dwelling) algae. Algae are important because they form the basis of the aquatic food chain which supports many other species.

Why did you choose to pursue a research degree as opposed to going into the workforce?
I wanted to learn as much as I could at uni and make the most of this opportunity. Research is exciting and I wanted to further my knowledge and discover all I can about my project. My project is important to me because it has real applications in the world that will help improve management strategies for the Great Barrier Reef World Heritage Area.

What attracted you to research at UTS Science?
I wanted a practical degree that would give me lots of experience in the field and skills to use in the workforce. I saw that UTS Science had some exciting field trips and opportunities for research, which looked great.

What opportunities has doing a PhD given you?
I have been lucky enough to present my research at several conferences both overseas and all over Australia. Through these experiences I have been able to meet many passionate researchers and inspiring scientists working in my field. This has also enabled me to travel and explore some of the most beautiful environments in Australia, most recently I have visited Kakadu National Park which is one of the most amazing places I have ever been!

Last year I competed in and won the UTS 3 Minute Thesis competition, I was then flown over to Perth to compete in the Trans-Tasman Finals. This was an amazing experience and I got to meet a lot of people, make some great connections and it really helped improve my communication skills.

What is it like to study at UTS Science?
I love studying here! The Science faculty is very supportive and focused on providing relevant and hands-on experience. I feel very lucky to have been able to do both.

My future
I am passionate about the environment and want to be involved in its protection, especially our freshwater ecosystems. I would love to work in a conservation and environmental management role where I could be part of instigating positive change.

“The Science faculty is very supportive and focused on providing relevant and hands-on experience.”
RESEARCH PROGRAMS
AT UTS SCIENCE

MASTER OF SCIENCE (RESEARCH)

UTS code: C03029

Duration: 2 years full-time or 4 years part-time

You will acquire research skills and deepen your knowledge in your chosen area of science. This course aims to advance professional development by providing experience in problem definition, hypothesis formulation and testing, data acquisition, analysis and interpretation, and project presentation.

Mode of delivery
You will work under the guidance of a supervisor who is a full-time academic staff member of the Faculty. You will be examined through presentation of a thesis, and may be required to take a prescribed subject in research methodology or any other subject deemed necessary by your principal supervisor. In addition to work on your research project, you will be expected to undertake extra activities in consultation with your supervisor to enhance and develop your skills as a researcher. These activities will be documented each year in the form of a study plan.

Career options
There is a wide variety of career options depending on your chosen area of science. This includes environmental consultant, medical scientist, researcher, resource manager, scientist or technologist.

Application requirements
> A recognised bachelor’s degree in the relevant field of research, or an equivalent or higher qualification.
> A nominated supervisor
> A research project proposal written in consultation with your nominated supervisor
> English proficiency requirement for international students or local applicants with international qualifications is IELTS: 6.5 overall with a writing score of 6.0; TOEFL: paper based: 575 overall with TWE of 4.5, internet based: 90 overall with a writing score of 21; DEEP: C

How to apply
Apply through the University Graduate School, visit www.gradschool.uts.edu.au
For a step by step guide in applying for a research degree at UTS Science, visit www.science.uts.edu.au/future
It is highly recommended that you contact the Faculty’s Research Office to discuss your research ideas, find potential supervisors and information on scholarships, fees and student support. Refer to page 44.
MASTER OF SCIENCE (RESEARCH) IN MATHEMATICAL SCIENCES

UTS code: C03026
Duration: 2 years full-time or 4 years part-time

You will acquire research skills and deepen your knowledge in your chosen area of mathematics. This course aims to advance professional development by providing experience in problem definition, hypothesis formulation and testing, data acquisition, analysis and interpretation, and project presentation.

Mode of delivery
You will work under the guidance of a supervisor who is a full-time academic staff member of the Faculty. You will be examined through presentation of a thesis, and may be required to take a prescribed subject in research methodology or any other subject deemed necessary by your principal supervisor. In addition to work on your research project, you will be expected to undertake extra activities in consultation with your supervisor to enhance and develop your skills as a researcher. These activities will be documented each year in the form of a study plan.

Career options
Skills in research and the ability to think mathematically are growing in demand – at various sectors such as banking and finance, government agencies, environmental companies and businesses in general. As a consequence, you will significantly broaden your career choices and pathways. For example, in senior levels of market research, quantitative management and quantitative finance.

Applications requirements
> A recognised bachelor’s degree, or an equivalent or higher qualification.
> A nominated supervisor
> A research project proposal written in consultation with your nominated supervisor
> English proficiency requirement for international students or local applicants with international qualifications is: IELTS: 6.5 overall with a writing score of 6.0; TOEFL: paper based: 575 overall with TWE of 4.5, internet based: 90 overall with a writing score of 21; DEEP: C

How to apply
Apply through the University Graduate School, visit www.gradschool.uts.edu.au

For a step by step guide in applying for a research degree at UTS Science, visit www.science.uts.edu.au/future

It is highly suggested that you contact the Faculty’s Research Office to discuss your research ideas, find potential supervisors and information on scholarships, fees and student support. Refer to page 44.
HOW TO APPLY FOR POSTGRADUATE RESEARCH PROGRAM

**STEP ONE**
Read information on research programs at UTS Science. Check your eligibility against the admission requirements for the course.
www.science.uts.edu.au/future/

**STEP TWO**
Decide on the area of research you would like to pursue and the type of project.
www.science.uts.edu.au/

**STEP THREE**
Find a suitable supervisor. You can search for a supervisor at this database www.uts.edu.au/research-and-teaching/future-researchers

**STEP FOUR**
Discuss the proposed research project with your potential supervisor. Write a Research Project Plan in consultation with your supervisor.
www.science.uts.edu.au/

**STEP FIVE**
Applicants must read the Faculty’s Point Scoring System, if you want to apply for a scholarship. Prepare your applications and make sure you provide all documentation and address all categories and entries that apply.

**STEP SIX**
Complete the appropriate Application Form and the UTS Science Project Plan in consultation with your nominated supervisor. Attach required documentation i.e. academic transcripts, CV, evidence of research experience, evidence of publications or prizes or awards, and submit your application form by the due date.
> Local applicants: download UTS application form www.gradschool.uts.edu.au/forms
> International applicants: see how to complete an application form www.uts.edu.au/future-students/international

**STEP SEVEN**
Submit all documentations to:
> Local applications to the Graduate Research School.
> International applications to UTS International.
International applicants must also refer to the International Application Procedure for further information.

**Important note**
Selection Criteria for UTS: Science Research Degrees
> Applications without the UTS Science Project Plan (a research project plan) will not be considered for admission.
> Applicants must contact a potential supervisor to discuss supervision of their project PRIOR to submitting their application to UTS. Applicants must nominate a Principal Supervisor and a Co-Supervisor who are staff members of UTS Science. In addition, applicants may also nominate an External Supervisor.
> All supervisors must be on the Register of UTS Supervisors, or must apply to be registered. It is also Faculty’s policy that Principal Supervisors must have a level of qualification equal to the degree they are supervising.
Additional supporting documentation for applications in UTS: Science

> Curriculum Vitae
> Copies of academic transcripts. These should include the GPA calculated on all undergraduate subjects, excluding Honours.
> Documentation providing evidence of full time or part time (specifying clearly what fraction of equivalent full time) employment in a professional capacity relevant to the proposed postgraduate project.
> Evidence of academic capacity, e.g. copied of international awards and prizes, etc.
> Documentation for any justifiable career interruption
> List of publications

STEP EIGHT

Register to attend Postgraduate Info Session. Discuss your study options with Research Program Directors.


Need Help?

UTS Science Research Development Office
Email: science.research@uts.edu.au

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