

A large, semi-transparent blue circle containing the text 'Science Careers Guide' in a white, bold, sans-serif font. The circle is positioned in the lower-left quadrant of the image, overlapping the legs of the two people walking.

Science Careers Guide

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Acknowledgement of Country

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

Careers in science and maths, more than what you think

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

REWARDING CAREERS, IN OR OUTSIDE OF THE LAB

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

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

UTS STUDENTS NAMED “MOST EMPLOYABLE” IN AUSTRALIA[#]

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

MAKE YOUR FIRST MILLION

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

[#] Australian Financial Review Top 100 Graduate Employers 2019

^{*} The Australian Industry Group, Progressing STEM Skills in Australia, March 2015.

^{**} Mapping Australian Higher Education 2014-15.

CRUNCHING THE NUMBERS

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



What career is right for me?

Science is all about solving problems, thinking critically and combining interdisciplinary expertise to the challenges that shape our world. All you have to do is decide which career may be right for you.



IF YOU'RE INTERESTED IN DRUG DEVELOPMENT FOR BETTER HEALTH

Combine chemistry, biology and pharmacology when you pursue a career as an analytical chemist, toxicologist or biopharmacist. By studying a Bachelor of Medicinal Chemistry, you gain the skills to design and develop new drug treatments for a wide range of diseases.

IF YOU'RE INTRIGUED BY TECHNOLOGY'S ROLE IN THE NATURAL WORLD

Use technology to aid biological processes and create new ways to improve human health and the environment by becoming a biotechnologist, cancer researcher or molecular scientist. A Bachelor of Science in Biotechnology or a Bachelor of Biotechnology will help you get there.

IF YOU WANT TO USE TECHNOLOGY TO HELP THE ENVIRONMENT

Want to tackle global resource and waste management using the latest techniques? Become an environmental sustainability manager, synthetic biologist or a research and development specialist!

IF YOU'RE FASCINATED BY BIG DATA

Prepare for a career in the emerging field of big data analytics as a data scientist, data analyst or market researcher. Learn to see big data as an opportunity for innovation as a credit risk manager, stock market analyst or financial portfolio manager.

IF YOU'RE CONCERNED ABOUT GLOBAL ISSUE IN HEALTH AND SECURITY

Want to help solve global issues in clean energy, water purification and health and security technologies with the discovery of advanced materials? Consider a career as a materials scientist, inventor or developer of clean energy technologies such as solar cells, water purification products, and materials that support health and security technologies.

SEE IF YOU'RE INTERESTED IN THE WORLD BEYOND WHAT YOU SEE

Or, work at the level of atoms and molecules to create smart fabrics, lightweight materials, drug delivery systems and more when you become a polymer scientist, composite technologist, investment advisor or nanolithographer.

IF YOU'RE CURIOUS ABOUT DEFENDING THE HUMAN BODY AGAINST DISEASE

Using what you can learn about the structure, function and disease processes of the human body and become a medical scientist, human factors researcher and anaesthetic, cardiac or operating theatre technician.

IF YOU'RE COMMITTED TO A CAREER IN MEDICINE, PHARMACY OR DENTISTRY

Work in the biological and medical science fields is limitless and the opportunities are endless! Become a doctor, pharmacist or dentist. Or if it's working behind the scenes that interests you, consider a future in biochemistry, microbiology or pathology. More research-savvy? A career as a cancer researcher, gene therapist or transplant specialist might be for you. A professional career path may lead you to becoming a health policy writer, medical writer or technical support for medical devices.

IF YOU'RE INTRIGUED BY THE POWER OF MATHEMATICS

Learn to analyse and manipulate data and get a big picture view of how your findings can be applied across a wide range of professional sectors. Think finance, logistics, health and market research. Skilled mathematicians and statisticians can help environmental scientists, engineers and geographers make sense of their data. You could be a market researcher, quantitative data analyst or even a computer programmer.

IF YOU'RE PASSIONATE ABOUT THE NATURAL WORLD

Be a force for good with an educational background that is all about environmental gain. Study the interaction of plants, animals and the environment with the Bachelor of Environmental Biology and start a career as a conservation consultant, ecologist or environmental analyst. Or, indulge your passion for the ocean and marine environments with the Bachelor of Marine and become an aquatic ecologist, coal geologist, plant taxonomist or hydrogeologist.

IF YOU'VE EVER IMAGINED YOURSELF ON CSI

Did you know UTS was the first Australian university to introduce a Bachelor's degree in Forensic Science? That's why we're the leaders in forensic science education and research. As a Bachelor of Forensic Science student, you'll discover the latest techniques in crime scene investigation and gain practical skills you can apply to various careers—such as forensic laboratory scientist, analytical chemist, forensic toxicologist or entomologist.



Scientists salary and job trends in Australia

AVG. BASE SALARY ACROSS SECTORS

\$111,458

AVG. TOTAL PACKAGE ACROSS SECTORS

\$129,734

AVG. BASE SALARY UP

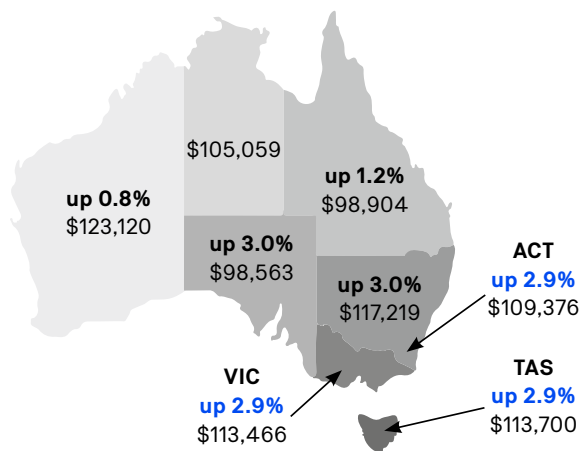


EMPLOYMENT INTENTIONS OF SCIENTISTS



10.1% changed jobs in the last 12 months
41.3% moved for a pay increase
42.9% were considering leaving their current job – pay increase, greater job security and better management the factors most likely to alter their intention

AVG BASE SALARY BY STATE/TERRITORY



GENDER PAY GAP IN SCIENCE



The mean base salary reported was **\$118,196** for males compared with **\$103,484** for females

Females earned **87.6%** of male earnings

Source: Professionals Australia

TOP 3 PAYING FIELDS OF SCIENCE



Botany
Avg. package \$151,982
Base salary
Up 2.5%



Physics
Avg. package \$145,802
Base salary
Up 2.4%



Mathematics
Avg. package \$144,698
Base salary
Up 2.1%

TOP 3 FASTEST GROWING SALARIES BY FIELDS OF SCIENCE



Veterinary Science
Avg. package \$94,223
Base salary
Up 4.7%



Agricultural Science
Avg. package \$147,521
Base salary
Up 3.5%



Manufacturing
Avg. package \$131,211
Base salary
Up 3.1%

TOP 3 HIGHEST PAYING INDUSTRIES FOR SCIENTISTS



Mining
Avg. package \$151,279
Base salary
Up 1.9%



Education & Training
Avg. package \$144,725
Base salary
Up 2.9%



Defence
Avg. package \$143,754
Base salary
Up 0.0%

TOP 3 HIGHEST PAYING JOB FUNCTIONS



Sales and Marketing
Avg. package \$160,460
Base salary
Up 2.7%



Management
Avg. package \$160,452
Base salary
Up 2.0%



Teaching or Training
Avg. package \$141,335
Base salary
Up 3.0%

Careers in biotechnology

At the forefront of innovation

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

Career options

MEDICAL BIOTECHNOLOGY

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

ENVIRONMENTAL BIOTECHNOLOGY

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

COMPUTATIONAL BIOTECHNOLOGY

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

SENSOR TECHNOLOGY

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

POSSIBLE EMPLOYERS

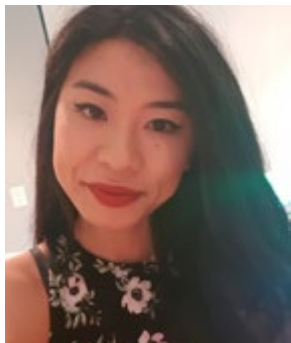
CSIRO, AusBiotech, AstraZeneca, Children's Medical Research Institute, Kelly Scientific Resources, Australian Institute for Bioengineering and Nanotechnology, AgResearch, Accenture Australia; and various positions in tropical crops and biocommodities, bioengineering and nanotechnology, and food science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

BIOTECHNOLOGY COURSES AT UTS:

- Bachelor of Biotechnology
- Bachelor of Science (Biotechnology)
- Bachelor of Advanced Science (Environmental Biotechnology)



Interested in a career in research? Meet Yasmin



NAME

Yasmin Chu

ROLE

Research Project Officer

COMPANY

Australia and New Zealand Melanoma Trials Group

DEGREE

Master of Science (Medical Biotechnology) (2017)

As a project officer in melanoma research my day to day activities vary greatly. I coordinate multiple melanoma and non-melanoma skin cancer clinical trials in various stages. Each clinical trial is unique and innovative to the world of research, so part of my role involves keeping up-to-date with all the newest results and publications in melanoma research around the world. The space I work in evolves incredibly quickly.

My role also includes developing protocols and procedures, coordinating clinical trials and recruiting patients at multiple sites – which involves training clinicians and research staff to perform studies according to the established processes. I also monitor hospitals to ensure that accurate research findings are presented in journals and at national and international conferences.

What I find most interesting about my job is working with leading researchers in melanoma and non-melanoma cancers around Australia and the world.

“These clinicians and researchers are incredibly passionate people with amazing ideas on how they want to improve treatment and care for patients. Its truly inspiring to be around that every day.”

Interested in a career in biotechnology start-ups? Meet Mykelti



NAME

Mykelti Pinto

ROLE

Founder

COMPANY

Flying Wombat Brewery

DEGREE

Bachelor of Biotechnology (2017)

I'm the founder and head brewer at Flying Wombat Brewery - a start-up craft brewer. Our mission is to become a renowned and respected brewery that engages with the public and maintains an emphasis on quality, creativity and innovation. Being a start-up, naturally my role is somewhat undefined most days, as I need to be both managing the accounting, project planning, marketing and of course the brewing for the business.

The Flying Wombat Brewery has now hosted events for various organisations, such as Cicada Innovations, Thomson Geer Lawyers and the UTS Biohacking Society.

My degree has certainly been hugely beneficial in helping me grow my business to where it is today. Having studied biotechnology, I have a strong background in bioprocessing, biosystems and experimental design, as well as understanding the intricate bioreactions that are involved throughout the entire brewing process.

I place great importance on incorporating science and creativity into our operations - with innovative methods we can create bold and exciting flavours.

My degree also provided interpersonal team building skills, project planning and development experience. My advice to future biotech students is to throw yourself into situations outside of your comfort zone as much as possible! It's the best way to grow as an individual and learn about all the potential pathways your career could take you.

“Most importantly take a minute to stop and smell the roses every once in a while, as much as uni can be stressful, it is such an amazing time of your life and it really does come to an end so quickly, so enjoy every minute of it!”

Interested in a career in food biotechnology? Meet Patrick



NAME

Patrick Tunhavasana

ROLE

Vendor Replenishment Planner/Integrated Supply Planner

COMPANY

MARS

DEGREE

Bachelor of Biotechnology (2015)

I'm currently in my second year of a three-year graduate program at Mars Food Australia (Mars). As an Integrated Supply Planner for Woolworths, my role is logistical and sales combined. I'm the primary supply contact between Woolworths and Mars and am responsible for ensuring the Woolworths' demand forecast is ordered on a daily basis, and that those orders are delivered on time and in full.

My degree has allowed me to develop an analytical mindset; as well as the soft skills required in business metrics. An analytical mindset is crucial when trying to improve and create an efficient process. My time at UTS was the catalyst for the passion and love I found for the food industry. The food biotechnology subjects gave me the exposure to the FMCG companies, from there, I knew it was where I wanted to be.

I always tell my peers to get out there and network! Don't be afraid to stretch and grow yourself personally. Self-reflection and awareness allows for this to happen. And grades aren't the "be all and end all" for a career in something you're passionate about.

"Once you find your passion, you will have to drive to achieve it any means necessary."

Interested in a career in international biotechnology? Meet Catherine



NAME

Catherine Walsh

ROLE

Immersion Fellow

COMPANY

Drishtee

DEGREE

Bachelor of Biotechnology (2017)

“In India, I have worked on developing many health related education programs, using the knowledge from my degree.”

Following my graduation from UTS I became a Drishtee Immersion fellow based in India. I work in rural sustainable development with two main parts to my role. Firstly, I facilitate the Drishtee Immersion program, where we bring small groups of university students to India who then spend three weeks living in a village, exploring and developing empathy with villagers in the community. Then using this connection, we explore different issues or problems people may be facing, before co-creating innovative solutions.

The second part of my role is to then further develop the solutions and work with the people involved to implement them in the community. This usually takes place after their studies. I have just signed on to become a permanent member of the team next year.

It was during my undergraduate degree that I first got involved in this. I went as a student on the Drishtee Immersion program, as it was a field I always wanted to work in. Fortunately, UTS gave me the opportunity to explore it in relation to my degree.

I studied biotechnology with the ambition to do a master's in public health later on and work in health development. During my time in India, I have worked on developing many health related education programs, using the knowledge from my degree.

"If I could give myself some career advice at the start of my degree, it would be to explore as much as uni has to offer. There is so much offered at uni in terms of extracurricular activities and overseas programs, such as Global Short Programs or the UTS BUILD Program. You never know what's out there unless you are willing to have a go!"

Careers in medical science and health

Careers that can take you anywhere

The fields of medical, biomedical and health sciences are constantly expanding, thanks in part to the development of new techniques and technologies to detect, diagnose and treat disease and manage human health. Today, a career title in this field doesn't necessarily begin with the word 'doctor' (although that's a great outcome too!). Instead, a medical or health sciences qualification can be applied within a hospital or far beyond.

Become a vaccine researcher and prevent the global spread of disease, work as a nutritionist helping everyday people optimise their health, or scrub in as an operating theatre technician and see life-changing surgery as it happens – there are more careers than you can count. Looking for a more hands-on clinical route? You can also use your degree as a foundation for a career in medicine, pharmacy or psychology.

CAREER OPTIONS

Medical lab manager, cytologist, biochemist, microbiologist, research associate, cancer researcher, gene therapist, embryologist, infectious disease researcher, diagnostic technician, biologist, biological oceanographer, pathologist, medical practitioner, medical and science technician, transplant scientist, medical scientist, medical imaging technician, human factors researcher, anaesthetic technician, cardiac technician, operating theatre technician, geneticist, medical journalist or writer, health professional, nutritionist, and medical researcher.



POSSIBLE EMPLOYERS

Children's Medical Research Institute, Centre for Cancer Biology, Westmead Institute for Medical Research, Accenture Australia, Australian Genome Research Facility (AGRF), ALDI Australia, ANZ Bank, Australian Defence Force, Australian Red Cross Blood Service, Australian Society for Medical Research (ASMR), Department of Foreign Affairs and Trade, federal and state government health departments, KPMG, Lion Co, Medicare Australia NSW Fire Brigades, pathology laboratories, Pfizer, PwC, Unilever Australasia, WorkSafe Victoria, Royal Prince Alfred Hospital, Westmead Children Hospital and other hospitals, various universities and biomedical and medical research institutions.

MEDICAL SCIENCE AND HEALTH RELATED DEGREES AT UTS:

- Bachelor of Advanced Science (Infection and Immunity)
- Bachelor of Advanced Science (Pre-Medicine)
- Bachelor of Advanced Science (Pharmaceutical Sciences)
- Bachelor of Biomedical Science
- Bachelor of Medical Science
- Bachelor of Health Science in Traditional Chinese Medicine
- Bachelor of Science (Biomedical Science)
- Bachelor of Science (Medical Science)



Interested in a career in allied health? Meet Denise



NAME

Denise Go

ROLE

Orthoptist

COMPANY

Prince of Wales Hospital

DEGREE

Bachelor of Medical Science (2015), Masters of Orthoptics (2017)

I am an orthoptist (an eye clinician) in the Ophthalmology department at Prince of Wales Hospital (POWH). As an allied health professional, I specialise in ocular disorders and eye movements. My role involves performing diagnostic test depending on the patient's condition, signs and symptoms. I also provide orthoptic treatment for paediatric patients and assist in minor surgical procedures and intravitreal injections for adults.

Studying a Bachelor of Medical Science at UTS has opened many doors of opportunity and has lead me to where I am today. It was because of the health-related science subjects in medical science, where I found my initial interest in allied health. During my time at UTS, the university provided various resources such as open days, information nights and career consultations which helped narrow my career choices. I was also greatly supported by the science faulty who gave encouragement and advice on pursuing a postgraduate degree. All these factors ultimately played a vital role in the search of my passion in allied health where I then pursued my career in Masters of Orthoptics at UTS.

University is not just about attending lectures and practicals. UTS provides opportunities in building your network within your faculty and have programs in order to improve your leadership and communication skills. There is an endless amount of resources available for those who are willing to search for it.

Interested in a career in regenerative medicine? Meet Neus



NAME

Neus Gomila Pelegri

ROLE

PhD Student

DEGREE

Bachelor of Biomedical Science

I started my UTS experience as an International student studying a Bachelor of Biomedical Science in 2014. After completing my degree I became a permanent resident, and continued studying an Honours and now a PhD; where I decided to dive further into the study of regenerative medicine.

I chose regenerative medicine particularly for the central nervous system (CNS), as I want to help people affected with neurological disorders. Regenerative medicine is an exciting and fast growing field that is showing promising results in clinical trials for musculoskeletal therapy and it is an expanding field and promising avenue for the CNS regeneration.

It's also a multidisciplinary field that combines the use of stem cells, biomaterials and bioactive molecules, which has forced me to learn from an array of fields and techniques that I would have not otherwise learnt. Its approach takes into account so many parameters that call for collaboration between physicists, material scientists, bioengineers, biomedical and medical experts allowing me to learn from all of those areas.

Studying at UTS as an International student has opened up so many opportunities for me. I was given the chance to do a five-week placement in a hospital laboratory, as well as participating in the BUILD plan, to do a two-week program in a University in Thailand through Global Short Programs. The ability to build longstanding relationships with the staff and students at UTS is something I continue to cherish.

“I chose regenerative medicine particularly for the central nervous system, as I want to help people with neurological disorders.”

Interested in a career in pharmaceutical sales? Meet Nikita



NAME

Nikita Lean

ROLE

Trade Operations Representative

COMPANY

Pfizer

DEGREE

Bachelor of Biomedical Science (2018)

I'm currently a Trade Operations Representative at Pfizer where I help refine the medication delivery process to pharmacies. My role involves developing programs and requires excellent communication skills – so far it's been a big learning curve, but I'm loving every second!

Before I started UTS, I wanted to go into pathology as a career so I picked biomedical science. I realised after two years that I hated being in the lab, but enjoyed the theory work. I found it was the pharmaceutical and biochemistry subjects I enjoyed the most. This realisation helped to redefine my goals leading to a passion of working in the pharmaceutical industry. Even though I didn't end up in the typical path of my degree, it definitely still got me where I am.

The best advice I could give to my younger self (and other) is that companies are just people doing things. At university, you put people in the industry on this pedestal of flawless professionalism. Once you enter the industry you'll realise they're just people!

“Don't be afraid to reach out to future employers, especially on LinkedIn (also, get started on your LinkedIn profile ASAP!).”

Interested in a career in science communication? Meet Rory



NAME

Rory Hocknell

ROLE

Programmatic Campaign Executive

COMPANY

UM (Universal McCann)

DEGREE

Bachelor of Biomedical Science (2018)

I studied biomedical science at UTS and graduated in early 2018. I had worked for UTS careers and interned for Ogilvy CommonHealth so I fell in love with Communications, rather than working in a lab. I ended up finding a job at media agency company UM (Universal McCann) as a Programmatic Campaign Executive on the biggest account in Australia - The Australian Government account.

My job involves using data and software to buy digital media/advertising in real time to run across the display, video, and audio landscapes. It also involves liaising with the client and working closely with partners such as Google, Seven West Media, Fairfax, Spotify and even data providers such as Quantum (Woolworths data) and Red Planet (Qantas data).

My degree helped me to build good communication skills, work effectively in a team, analyse data and adapt to any scenario. While studying biomedical science I undertook the highly selective placement program “Professional Skills in Biomedical Science” which let me intern with Ogilvy CommonHealth - a Medical Communications PR agency. It was here in which I got to communicate both medically and professionally to key stakeholders around the company.

“Don’t limit yourself to working in an area that your degree is destined for. Think outside the box, look at the bigger picture and focus on how you can apply your problem-solving and analytical skills to other areas.”

Careers in physics and nanotechnology

Matter, energy and beyond

Physics is a tool to expand the frontiers of technology. A degree in physics or nanotechnology will see you working in specialised microlabs and developing experiments based on the interaction of matter and energy that have genuine potential to do good in the world. As a physics graduate, you could generate clean energy and energy efficient materials, drive the development of next-generation forensic techniques, and harness statistical methods and modelling to solve global health challenges. From nanotechnology and molecular physics to sustainable energy and meteorology, a physics degree can get you where you want to go.

CAREER OPTIONS

Conservator, metallurgist, meteorologist, physicist, coal geologist, sensory biophysicist, atmospheric and environmental physicist, atomic and molecular physicist, medical and health physicist, nanotechnologist, optical physicist, noise consultant, materials analyst or scientist, biophysics consultant, energy and sustainability researcher, polymer scientist, composite technologist, investment advisor, science teacher, academic, technical officer, imaging specialist, research associate or assistant, drug delivery researcher, nanolithographer, platform project officer.



POSSIBLE EMPLOYERS

BluGlass RPCVD technology, Pilkington, Wattyl Paints, Australian Defence Force, Bureau of Meteorology, Defence Science and Technology Organisation, KPMG, Woodside Energy, Australian Synchrotron, NASA, ANSTO, secondary or tertiary education sectors, energy companies like Energy Australia or Origin Energy, MasterFoods Australia, Australian Institute of Physics, Australasian College of Physical Scientists and Engineers, Australian Research Council, Australian Genome Research Facility (AGRF), Australian Institute of Physics, Institute of Microelectronics (IME), federal and state government departments, and medical research facilities/hospitals. Physics, Australasian College of Physical Scientists and Engineers, Australian Research Council, Australian Institute of Physics and Institute of Microelectronics

PHYSICS AND NANOTECHNOLOGY COURSES AT UTS:

- Bachelor of Advanced Science (Advanced Materials and Data Science)
- Bachelor of Biomedical Physics
- Bachelor of Science (Applied Physics)
- Bachelor of Science (Nanotechnology)
- Bachelor of Science (Flexible) - Physical Sciences



Interested in a career in science education? Meet Jessica



NAME

Jessica Nissan

ROLE

Educator, Entrepreneur

COMPANY

Australian College of Physical Education, Self-employed

DEGREE

Bachelor of Science (Applied Physics) (2015)

I am currently looking into starting up a science education tutoring service in my local area. It would be catered towards K-12 students interested in improving science skills or requiring help in science, including HSC physics, chemistry and biology. There will be a focus on utilising new technology to enhance the learning experience, such as using online games and augmented reality, and applying modern learning theories such as inquiry-based learning.

My passions have always been science, education and new technology. My Bachelor of Science in Applied Physics and Master of Teaching in Secondary Education allowed me to specialise in these areas and feel confident in applying them in a business start-up. The specific units, such as ‘Designing Learning for a Digital Generation’, provided me with the opportunity to explore my interests in-depth and increased my expertise in areas I will be applying in my career.

I was never sure what I wanted to do with my degrees, but I feel like I have been able to study high quality units in areas I have always been interested in and that has provided me with so many career opportunities. I also loved working at UTS as a science promotional representative, delivering science workshops to high school students, which has enhanced my experience in both education and science.

“Apply yourself to every unit in your degree. The content you study and the academics teaching them are valuable resources for your career path.”

Interested in a career in cyber security? Meet Thomas



NAME

Thomas Nommensen

ROLE

Cyber Security Analyst

COMPANY

Darktrace

DEGREE

Bachelor of Science (Applied Physics
Nanotechnology) (2016)

I work at the cyber security firm Darktrace. The company itself originated from the UK and was founded in 2013 through collaborative efforts between Cambridge University mathematicians and the secret service (MI5). The collective aimed to create a product that would leverage AI technology and apply it to the hacking sphere on a networking scale.

As a Cyber Security Analyst, I monitor networks on a global scale and try to identify potential compliance issues, security breaches, possible vulnerabilities and resolutions. These so called 'incidents' are documented in reports and delivered to clients around the globe.

Being part of the UTS Applied Physics ecosystem has taught me many things. One of the most crucial things, apart from the academic spectrum, was the ability to communicate with different audiences. Many of the skills I learnt at university are highly transferable in both academia and corporate life. Although cyber security isn't directly related to physics, it still overlaps in terms of critical thinking and assessing claims.

“Working as an analyst at Darktrace is very rewarding – I’m always up-to-date with the latest threats and this allows me to question my own security.”

Careers in mathematics and analytics

More than numbers

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

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

CAREER OPTIONS

Market researcher, quantitative data analyst, financial consultant, valuer, quantity surveyor, investment analyst, systems analyst, banker, statistician (medical, sports, surveys), mathematics teacher, academic, statistical modelling analyst, data scientist, business analyst, logistics manager, credit risk manager, financial portfolio manager, financial risk manager, computer programmer, intelligence analyst, airport traffic analyst, mathematical modeller, stock market advisor/analyst, insurance pricing analyst, policy advisor, forensic accountant, taxation consultant, treasurer or economist.



POSSIBLE EMPLOYERS

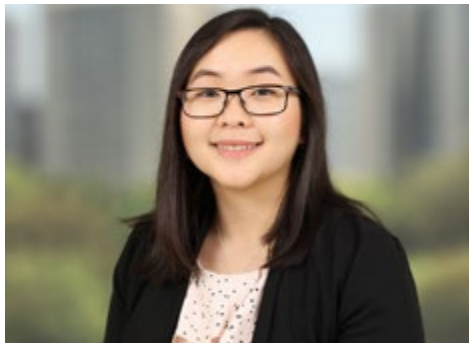
CSIRO, Garvan Institute of Medical Research, Lockheed Martin, Australian Bureau of Statistics, Data Analysis Australia, Department of Defence, Deloitte, Roche Australia, AC Nielsen, News Poll, NSW Bureau of Crime Statistics & Research, NSW Bureau of Health Information, McKinsey & Company, Woolworths, Bureau of Meteorology, the NASDAQ Stock Market, Deloitte, IBM, First NZ Capital, Colonial First State, Insurance Australia Group, Productivity Commission, the Linfox Group, NSW Transport, the Aerospace Corporation, Applied Mathematics, Inc., National Institute of Standards and Technology, Boeing, 3M, Commonwealth Bank, Westpac, ANZ, NAB and other banking and financial institutions, PwC, Allianz, universities around the world, Google, media and marketing companies, professional services and consulting firms, insurance companies, superannuation providers, government regulatory bodies such as APRA and ASIC.

MATHS, ANALYTICS AND STATISTICS COURSES AT UTS:

- Bachelor of Science (Mathematics)
- Bachelor of Science (Statistics)
- Bachelor of Science (Analytics)
- Bachelor of Science (Flexible) - Physical Sciences



Interested in a career in financial analytics? Meet Michelle



NAME

Michelle Lau

ROLE

Risk Analyst

COMPANY

Deloitte Australia

DEGREE

Bachelor of Medical Science, Bachelor of Business
(2016)

Currently, I work at Deloitte Australia in the western Sydney office within their Risk Advisory Service line. My work mainly involves conducting internal audits and advisory engagements with clients. This can involve meetings, walkthroughs, testing the control environment, and providing results and reporting to our clients.

Our reports and audits help identify key risks or gaps; and offer improvements to our clients' processes and procedures. This might include compliance checks to ensure our clients are in line with legislation or regulations.

At UTS, I studied a combined Bachelor's degree of Medical Science and Business. Studying this combined degree allowed me to apply for a larger range of roles in finance, business and health. In the end, I chose to apply for Deloitte as I knew they had a large range of clients across many different industries including corporate, private sector, public sector and health.

Working with a diverse range of clients - from engineering, construction and banking, to hospitality, health, education and charities - makes my work day really interesting. We are constantly learning new things from our clients as our work involves understanding their processes and how these industries work. I'm also learning about the role these businesses and organisations have in making our economy the way it is today.

“Find out as much as you can about the field of work you're aiming to get into and have realistic expectations on the work required to get you there.”

Interested in a career in artificial intelligence? Meet Russell



NAME

Russell Davies

ROLE

Experience Management Consultant

COMPANY

Qualtrics

DEGREE

Bachelor of Science (Nanotechnology)

I currently work as an Experience Management Consultant for Qualtrics – a research platform that collects data from surveys and feedback to identify key drivers and values. UTS is one of our clients, as it turns out, as well as a number of other universities. We aren't just in the academic space, we're moving into the corporate world too.

I feel like a lot of my university experience aligns with my current role. The platform has artificial intelligence imbedded into it, so being able to understand the back end of the system has definitely given me an edge that others wouldn't have.

I spend all day talking to people from different backgrounds, so being able to effectively communicate is another useful skill I picked up studying at UTS. For example, the more “tech-savvy” clients are far more interested in hearing about the complicated technology behind the platform, but clients who don't have that knowledge – such as someone in marketing who has been tasked to acquire the platform on behalf of others - prefer you to communicate without any tech jargon. Knowing how to communicate with my stakeholders is an important ability to have.

It's similar to nanoscience, when you're presenting to your peers, you tend to be very tech oriented, results driven and a lot more focused on analysis. Alternatively, presenting to a wider audience means breaking down the information in a way anyone can understand.

“Quit stressing out. It'll be something good in the end. It won't be what you expected at first, but you'll get there.”

Careers in environmental science and marine biology

Protecting the one thing that matters

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

CAREER OPTIONS IN ENVIRONMENTAL SCIENCE OR BIOLOGY

Biologist, environmental research scientist, environmental or conservation consultant, environment education officer, life scientist, ecologist or 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, land economist, mapping scientist, secondary school teacher, environment analyst, policy maker, botanist, science writer/editor.

POSSIBLE EMPLOYERS

CSIRO, National Parks and Wildlife Service, NSW Roads and Maritime Service, Schlumberger Oilfield Australia, Sunwater, Sydney Water, Goulburn-Murray Water, Lend Lease Corporation, Orica Ltd, WSP Parsons Brinckerhoff, NSW Department of Primary Industries, environmental protection organisations, water and coastal resources organisations, universities, TAFEs, Australian government departments, local councils.



CAREER OPTIONS IN MARINE BIOLOGY

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

POSSIBLE EMPLOYERS

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

ENVIRONMENTAL AND MARINE SCIENCE COURSES AT UTS:

- Bachelor of Advanced Science (Environmental Biotechnology)
- Bachelor of Environmental Biology
- Bachelor of Marine Biology
- Bachelor of Science (Environmental Sciences)
- Bachelor of Science (Flexible) - Life and Environmental Sciences



Interested in a career in eco-tourism? Meet Samantha



NAME

Samantha Tilden

ROLE

Tour Guide

COMPANY

Mackay Tourism

DEGREE

Bachelor of Science (Marine Biology) (2016)

I am currently working for Mackay Tourism as a tour guide for the Cape Hillsborough Sunrise with the Wallabies Tour. With this job I am primarily a source of information about the kangaroos and wallabies we have on the beach as well as giving additional information about the area. I am also the person in control of the management of the experience—I set up the viewing area, provide supplementary feed for the animals and provide safety information for the visitors on the beach.

I monitor the mob of animals each morning (looking for specific individuals in the mob, males versus females, adults versus adolescents, females on heat, new joeys coming through, and any new individuals joining the morning experience (as they are all wild animals)). We are currently in the process of developing monitoring and assessment procedures for the health of the animals. Working with JCU, I will be collecting any samples required as well as helping to analyse and provide results on the collected data.

Each morning the wallabies and kangaroos come onto the beach to forage for seaweed and mangrove seed pods that wash up with the high tide. They have been doing this for about 30 years now. It is so interesting spending my mornings with the wallabies and the resident kangaroos as they each have such distinct personalities! I definitely love being involved in this job as it is so great to see how something as simple as observing wallabies and kangaroos in the wild can be so captivating for locals and international visitors!

“I’m able to use my knowledge and scientific background to help visitors understand why the protection of our natural experiences and animals is so important.”

Interested in a career in marine biology? Meet Justin



NAME

Justin Tierney

ROLE

Fisheries Technician

COMPANY

Port Stephens Fisheries Institute

DEGREE

Bachelor of Marine Biology (2014)

I currently work as a Fisheries Technician with the Port Stephens Fisheries Institute.

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

Part of my daily routine includes general fish husbandry and maintenance, such as feeding and cleaning. I also take a lot of data samples and look after the research trials. We provide the science to develop better strategies for fish-growth efficiency and we then use that data in conjunction with aquaculture companies.

I really enjoy the dynamic work environment. Most experiments run for an average of 6-8 weeks which means I'm able learn new sampling techniques every couple of months. Also being able to implement more efficient system design strategies and being able to see them work is really rewarding.

I found that UTS not only provided me with the theoretical and practical skills essential for my varying roles, but also the confidence necessary to undertake these skills in the work environment. This came from being able to implement both the theory and practical parts in the field including trips to Heron Island and Stroud. UTS Science also gave me the opportunity to be able to study abroad in Peru for our sub-biodiversity for a month.

“I’m able to use my knowledge and scientific background to help visitors understand why the protection of our natural experiences and animals is so important.”

Careers in chemistry and forensic science

Chemistry – the heart of science

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

Where CSI comes to life

It's called the "CSI Effect" – students flocking to forensics degrees after watching TV crime shows. The good news? The real world of forensics is much broader and more profound than what you see on screen. Chemists and forensic experts make a meaningful difference to the foundations of everyday life – and you can too. Projects include methods to identify infection transmission pathways in order to prevent disease migration, as well as the development of techniques to detect and prevent crime before it happens, among others. As a forensic scientist, you could be at the forefront of improving the way crimes are solved and prosecuted.

CAREER OPTIONS IN CHEMISTRY

Pharmacologist, toxicologist, clinical trials manager, analytical chemist, microbiologist, biopharmacist, drug developer. Chemistry is an interdisciplinary science and has a role in many new and established technologies. Chemists have important roles in the food, medical, cosmetic, oil, mining, agricultural, pharmaceutical, chemical, construction and environmental industries, to name a few.

POSSIBLE EMPLOYERS

Advanced Analytical Australia, CSIRO, Chevron, ANSTO, Australian Genome Research Facility (AGRF), the Australian Centre for Plant Functional Genomics, ANZ, Amcor Australasia, Australian Defence Force, Australian Secret Intelligence Service (ASIS), BHP Billiton, Bluescope Steel, Boral Limited, Honeywell, Kellogg Brown and Root Pty Ltd (KBR), NSW Fire Brigades, Rio Tinto, Sydney Water, Technip Oceania, Thales Group, Unilever, Visy, pharmaceutical companies, biotechnology start-ups, hospitals, medical research facilities, universities, and government regulatory authorities.



CAREER OPTIONS IN FORENSIC SCIENCE

Crime scene officer, DNA profiler, forensic laboratory scientist, biomedical scientist, expert witness, forensic trace evidence specialist, analytical chemist, science teacher, lecturer or academic, clinical toxicologist, forensic toxicologist, regulatory toxicologist, forensic entomologist, team leader in investigations, forensic chemist, forensic anthropologist, research associate, analytical technician.

POSSIBLE EMPLOYERS

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

CHEMISTRY AND FORENSIC SCIENCE COURSES AT UTS:

- Bachelor of Science (Chemistry)
- Bachelor of Medicinal Chemistry
- Bachelor of Forensic Science (majors include: Chemistry, Biology, Crime Scene Investigation, Digital Forensics)



Interested in a career in forensic science? Meet James



NAME

James Finger

ROLE

Crime Scene Officer

COMPANY

NSW Police

DEGREE

Bachelor of Forensic Science in Applied Chemistry
(Honours) (2004)

“The highly practical and hands-on nature of my degree at UTS prepared me well for both crime scene and laboratory environments.”

My science career began in 2005 when I became involved with Education Interactive (EI) – a science communication company whose core business is to develop and present hands-on forensics workshops for students that educate and entertain. First I was a workshop presenter, then programme developer, before becoming a business manager.

Science communication is an increasingly important field, and people who can act as the bridge between the sometimes complex world of science and the public have great opportunities in many workplaces. I travelled all over Australia teaching EI's first program to high school students.

My course at UTS Science gave me a good grounding in a wide variety of forensic disciplines, allowing me to explain concepts accurately and on a level the students would appreciate.

In 2015, I returned to the NSW Police Force as a civilian Crime Scene Officer. My role has me working at the police labs in Sydney, primarily handling drug offence related evidence with the Evidence Recovery Unit. I work alongside police and other civilian officers processing exhibits for DNA and fingerprints, as well as conducting preliminary drug identification. There are a good number of UTS graduates amongst my colleagues and throughout the Forensic Services Group – I seem to be bumping into people I used to know at university all the time.

The highly practical and hands-on nature of my degree at UTS prepared me well for both the crime scene and laboratory environments I now find myself in, and I'm loving being back in 'real' forensics with the Forensic Services Group.

Interested in a career in cosmetics? Meet Daphne



NAME

Daphne Kapetas

ROLE

CEO and Founder

COMPANY

LAJOIE SKIN Pty Ltd

DEGREE

Bachelor of Applied Science (Chemistry)

Combining Science with a Master of Business resulted in opening a huge amount of international doors for me. I have loved every minute of my career and those times that I didn't, I went back to Uni to learn more.

Today I am the CEO and Founder of LAJOIE SKIN (www.lajoieskin.com) and the greater of Calmmé. Calmmé helps prevent and soothe chafing in sensitive areas. Our customer include serious athletes, exercise enthusiasts or just everyday people that just want to walk around without chafing. Now our customers are also using Calmmé to help soothe their children's eczema. In one year from manufacturing here in Sydney with Australian formulating Chemists, our brand Calmmé is now sold online internationally and via Amazon USA.

At the time of studying my Bachelor of Applied Science (Chemistry), I knew that I loved Science, but I was not aware of the endless amount of possibilities there were for me. Combining my Science degree with a Master of Business in Marketing (UTS) placed me in a unique position and one that opened even more international doors.

“At the time of studying my Bachelor of Applied Science (Chemistry), I knew that I loved science but was not aware of just how many doors it would open”.

science.uts.edu.au/future

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