

MATHSADDS

WHAT'S YOUR PASSION?

- ARCHITECTURE
- AVIATION
- BANKING
- BIOINFORMATICS
- BUSINESS & CONSULTING
- CODING
- COMPUTING & TECHNOLOGY
- CRIMINOLOGY
- CRYPTOLOGY
- ECONOMICS
- ENERGY
- ENGINEERING
- ENVIRONMENTAL SCIENCE
- FINANCE
- FORENSICS
- GAME DESIGN
- GEOLOGY
- INVESTMENT
- MARKETING
- MEDICINE
- METEOROLOGY
- OPTOMETRY
- PHARMACOLOGY
- PHYSICS
- ROBOTICS
- SECURITY
- SPORT
- STATISTICS
- TEACHING & EDUCATION
- TECHNOLOGY
- TRANSPORT



CAREERS.AMSI.ORG.AU

22nd edition

CAREERS GUIDE

AUSTRALIAN MATHEMATICAL SCIENCES INSTITUTE



OPEN UP YOUR WORLD

Open up talent, skills and theory to industry and they'll open up new worlds of innovation and opportunity. Share untapped PhD knowledge to influence, evolve and shape our world in so many ways. Apply PhD theory in the real world with APR.Intern.

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MATHSADDS

CAREERS GUIDE

22nd edition

Students often ask 'how will I ever use maths in the real-world?'

AMSI MATHSADDS aims to help answer this question by providing a one-stop shop for information on mathematics and statistics careers.

With examples of real job ads, you can explore the real-world application of mathematics sector by sector. Be inspired by profiles and plan your next steps with study pathway information. We hope students, teachers and parents will change their perception of mathematics and statistics as they discover how varied and rewarding these career pathways can be.

If you'd like to delve even deeper, you can find more information on our website, including more job ads, profiles, videos and a range of resources to support students and teachers.

CAREERS.AMSI.ORG.AU

CAREERS IN MATHS

What's your dream? Have you ever thought of launching a startup company, reaching millions of users with a new app or saving lives with a miracle discovery in medicine? You can make it happen by choosing maths.

Mathematics is an essential in the 21st century workforce and it's your doorway into nearly every industry.

More than crunching numbers, maths is the language that allows you to solve the problems of tomorrow, innovate new technology and lead scientific discoveries. So if you're still wondering where on earth you'll ever use maths, don't! Start getting ready for the extraordinary. Some of the biggest challenges for future generations are still to come and the solution is maths!

S.T.E.MATHEMATICS

75% of the fastest growing jobs require STEM skills! We hear this a lot. But what does it really mean?

STEM (Science, Technology, Engineering and Mathematics) is all around us. It helps us cure deadly diseases, design future proof cities and make sense of increasing volumes of data and new technologies. Studying and working in STEM is all about solving problems and shaping lives. It's about having the agility to embrace the new and creativity to innovate the future.

Choose maths and be ready for the amazing careers of tomorrow.





P.6 SCIENCE & ENVIRONMENT

From astrophysics and chemistry to biology and zoology, many scientists use maths to understand how the world works and why. Your opportunity for discovery is limited only by your imagination.



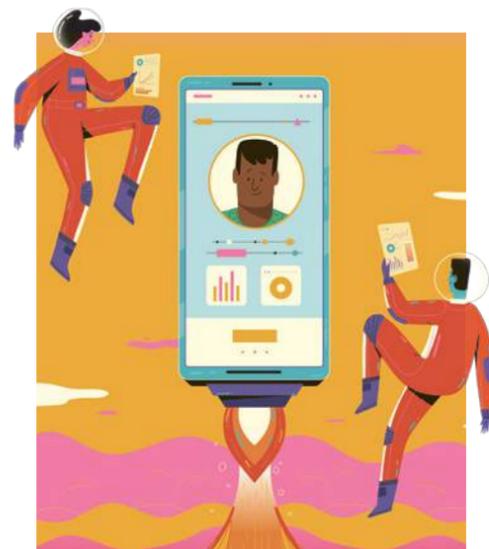
P.14 HEALTH & SOCIETY

Stopping infectious diseases, developing virtual reality medical technology, engineering prosthetic limbs and the rise of personalised medicine, maths graduates play a critical role in the future of healthcare and medicine.



P.22 ENGINEERING & RESOURCES

From robotics, infrastructure, chemical processes, software, machines and buildings, engineers are shaping our future by applying their problem solving skills to almost everything you can think of.



P.30 BUSINESS & MARKETING

From small businesses and start ups through to the big players, the ability to draw conclusions from numbers and data dictate the complex moves many businesses make in order to turn a profit.



P.38 FINANCE & MONEY

It may seem obvious but from accounting and banking to the investment and insurance industries, maths and stats graduates are in great demand across the finance sector.



P.48 TECHNOLOGY

We are in the middle of a technological revolution. Machines haven't quite taken over yet, but our world is radically changing and you can be a part of it if you Choose Maths.



P.56 SECURITY & DEFENCE

It is difficult to imagine a world without emails, online banking and social media. This information is valuable but it leaves us vulnerable to cybercrime, systemic failure and data corruption.



P.64 BIOSTATISTICS & BIOINFORMATICS

Bioinformaticians are specialists in the evaluation of biological data. Working with complex data sets, they provide the mathematical framework to interpret scientific data generated in biology and other health sciences.



P.72 TRANSPORT & LOGISTICS

As the world becomes more connected, and populations explode, global transport and logistics and the need to move billions of people, goods and services has never been more complex.



P.80 EDUCATION

Australia needs mathematically trained teachers in its classrooms. Use your expertise to positively influence students and equip them for future success.



P.88 SPORT & RECREATION

It's impossible to watch sport without hearing statistics. Goals scored, kicks, patterns of play and even betting odds. And for every piece of data you hear, there is a team of analysts, trying to work out the next best move.

P.95 GRADUATE PROGRAMS

Apply for a graduate program and have the security of a job offer before you even finish your degree!

AMSI [AMSI.org.au](https://amsi.org.au)

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LA TROBE UNIVERSITY latrobe.edu.au/mathstats

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Maths Adds has been prepared by AMSI in partnership with La Trobe University. We thank our contributors, who kindly gave permission to reproduce their employment advertisements in this publication.



A 21st century experience at Australia's first university.

Skills in mathematics, statistics, and data science are becoming increasingly essential in solving the challenges of the future. Study with us and you'll learn from some of the brightest minds in the field. Make lifelong friendships and connections as you work towards an exciting global career.

What will you start here?
sydney.edu.au/science/math



THE UNIVERSITY OF SYDNEY

CRTICOS 00025A

EDDIE WOO

Mathematics heightens our engagement with the world, allowing us to perceive it as it truly is. Without maths at our side, there are countless patterns and realities in both human society and its environment that will simply sail over our heads while we are none the wiser. One of the reasons I love being a teacher is that I get to equip my students to go into the world with both eyes open, and this is critical to every field of human endeavour.

Keeping yourself safe online so that you can message your friends in privacy – or make secure purchases? Number theory and cryptography are the mathematical keys. Trying to design a city that efficiently moves people and traffic through its streets and walkways? This time it's graph theory. Choosing the right balance of players to run on to the field for a grand final? Sports statistics. Understanding and devising solutions for our changing climate? Integral calculus. Finding lost treasure hidden on the ocean floor? Search theory. Whatever the question, mathematics has a hand in the answer.

Big data and algorithms have played an important role in society for many years, but we are at an unparalleled point in history where our everyday experiences are governed



“ UNIMAGINED POSSIBILITIES AWAIT US, IF YOU HAVE MASTERED MATHEMATICS THEN YOU WILL BE THE PIONEER WHO SETS A COURSE FOR HUMANITY BEHIND YOU! ”

by mathematical structures. Doctors diagnose diseases, judges decide criminal sentences, and actuaries set insurance premiums based on algorithms and neural networks that all run on the principles of mathematics.

And so indeed they should – many of the situations we face and problems we must solve are far too complex for any single human being to comprehend on their own. Just like the industrial revolution devised mechanical muscles to work on tasks that we find physically impossible, the information revolution is devising mechanical minds to work on tasks that we find mentally impossible. My advice to you: embrace mathematics and be one of the people to shape this exciting new world. Unimagined possibilities await us, if you have mastered mathematics then you will be the pioneer who sets a course for humanity behind you!



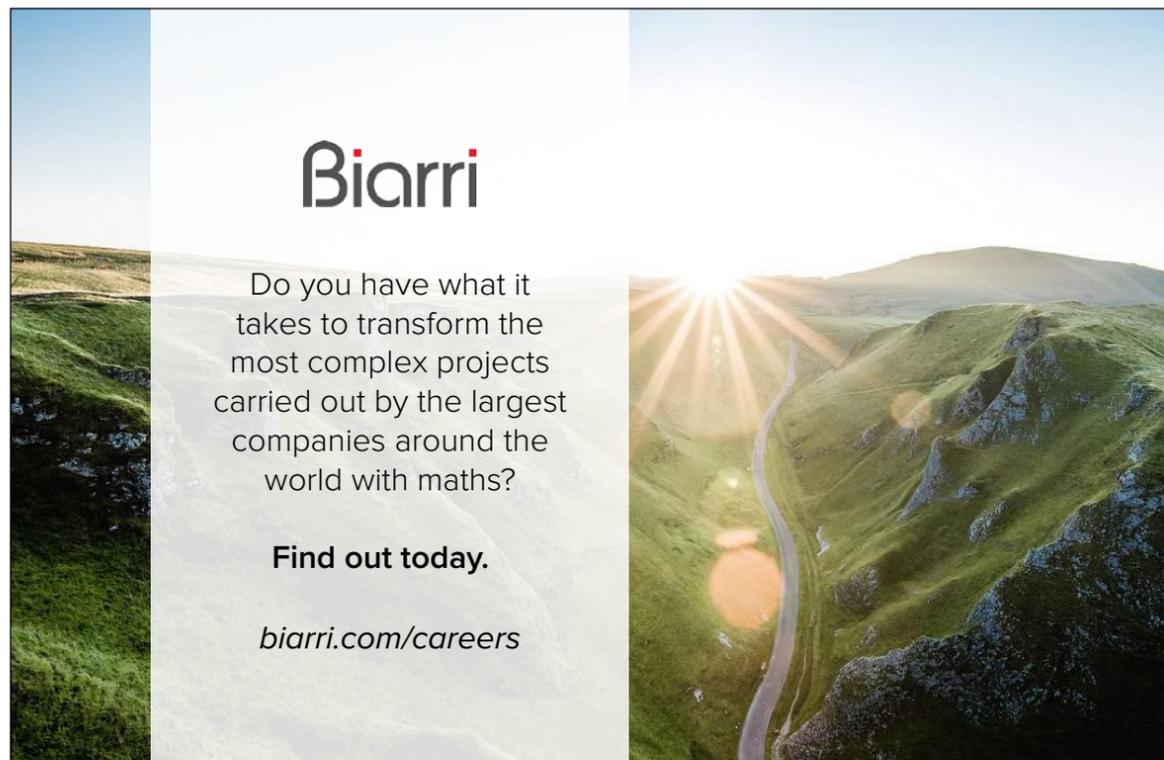
SCIENCE & ENVIRONMENT

From Astrophysics and Chemistry to Biology and Zoology, Mathematics helps scientists make sense of how and why the world works.

Data analysis, mathematical modelling and evidence-based decision making play an important role in research. Scratch beneath the surface and you'll find science and maths working together to help understand our planet, oceans and wildlife, discover new galaxies and advance new technologies

With rising global temperatures, food security concerns and changing global ecosystem dynamics, climate change is a real and urgent priority! The green economy is worth \$6 trillion worldwide and is the fastest growing market globally, with 850,000 more people needed in the sector by 2030.

Maths plays an important role in forecasting weather patterns, creating climate and environmental models and developing large-scale renewable energy solutions. Use your skills to crunch the numbers and save our planet!



Biarri

Do you have what it takes to transform the most complex projects carried out by the largest companies around the world with maths?

Find out today.

biarri.com/careers

Australian Mathematical Society

Promotes the mathematical sciences and their applications in Australia.

Represents mathematics, and the interests of mathematics related professions, to the Australian community and government.

Careers in mathematics

In today's information-rich environment, the possibilities for mathematically trained graduates are endless.

Find more career opportunities at www.austms.org.au/Careers



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Join Up Now
www.austms.org.au/apply
 * Eligible students receive a period of free membership

STATISTICAL CONSULTANT

UNSW / Sydney / Contract/Temp / \$75,069- \$123,908+

The Organisation

At UNSW, we pride ourselves on being a workplace where the best people come to do their best work. We aspire to be Australia's global university, improving and transforming lives through excellence in research, outstanding education and a commitment to advancing a just society.

The Mark Wainwright Analytical Centre (MWAC) is part of the Division of Research and sees the colocation of major research instrumentation in the University in purpose-built high-grade facilities for the study of the structure and composition of biological, chemical and physical materials and includes preparation laboratories, smaller instruments and computing facilities. In addition, MWAC provides the technical/professional support for these instruments. Analytical Centre staff members are expected to contribute to the overall success of the Centre by making a major contribution to Centre initiatives and participating fully in cooperative education and research projects.

The Opportunity

Stats Central is based in the Mark Wainwright Analytical Centre in the Division of Research and offers UNSW researchers support in [study design and analysis](#), as part of the university's 2025 Strategy.

Reporting to the Senior Statistical Consultant and the Director, you will provide statistical consulting services to all UNSW researchers, but especially those in the Medicine & Science faculties. Key responsibilities include statistical consultation and collaboration with UNSW researchers, the development and running of regular professional development workshops; offering statistical support during grant writing; outreach to consultants around campus and documenting Stats Central activities.

About the successful applicant:

You have a PhD in [Applied Statistics](#) or related discipline and the ability to work in a [statistical consulting](#) role. Key criteria include:

- Demonstrated experience communicating and collaborating with applied researchers lacking high-level statistical expertise
- Ability to effectively instruct applied researchers on [statistical techniques](#) in a short course setting, and develop materials for short courses
- Ability to review research grants and journal articles under supervision
- Proficiency in a range of [statistical methodologies](#) and [statistical packages](#)

Associate Lecturer

(in addition to the core criteria above)

- Demonstrated track record of independent research published in high quality journals and conferences

Lecturer (in addition the core criteria above)

- Experience working in a statistical consulting role
- Demonstrated ability to effectively instruct applied researchers on [statistical techniques](#) in a short course setting, and develop materials for short courses
- Experience reviewing research grants and journal articles
- A strong inter-disciplinary publication record including publications in [statistical methodology](#) journals

#statistics #applied statistics #statistical software
 #statistical consultancy #statistical methods

OKAY
 SO HERE'S WHAT YOU NEED TO **KNOW!**

THE MATHS

PROBABILITY
 STATISTICS
 ALGEBRA
 FUNCTIONS
 GEOMETRY
 TRIGONOMETRY
 VECTORS
 MATRICES

THE JOBS

STATISTICIAN
 MATHEMATICIAN
 DATA SCIENTISTS
 ECOLOGIST
 ENVIRONMENTAL SCIENTIST
 METEOROLOGIST
 CLIMATE SCIENTIST
 ASTRONOMER

THE EMPLOYERS

GOVERNMENTS
 UNIVERSITIES
 NATIONAL PARKS AND WILDLIFE
 CONSULTING COMPANIES
 ENVIRONMENTAL NGOS

16% ONLY
OF STEM QUALIFIED PROFESSIONALS
ARE WOMEN

Office of the Chief Scientist
Australia's STEM Workforce

RESEARCH FELLOW, COMPUTATIONAL MATHEMATICS

Monash University / Melbourne - Clayton / Full Time -
fixed term / \$97,203 - \$115,429 +

- Be inspired, every day
- Drive your own learning at one of the world's top 80 universities
- Take your career in exciting, rewarding directions

Everyone needs a platform to launch a satisfying career. At Monash, we give you the space and support to take your career in all kinds of exciting new directions. You'll have access to quality research, infrastructure and learning facilities, opportunities to collaborate internationally, as well as the grants you'll need to publish your work. We're a university full of energetic and enthusiastic minds, driven to challenge what's expected, expand what we know, and learn from other inspiring, empowering thinkers.

The Opportunity

The School of Mathematical Sciences seeks a motivated researcher to work on problems in Computational Mathematics. This position will work on developing novel algorithms for the numerical approximation of partial differential equations (including discretisation, techniques linear and nonlinear solvers, and uncertainty quantification), their advanced implementation in parallel environments, and their application to the large scale simulation of complex problems in engineering and science. Applicants with a PhD in Mathematics, Computer Science or a related field would be most desirable.

This role is a full-time position; however, flexible working arrangements may be negotiated.

At Monash University, we are committed to being a Child Safe organisation. This position at the University will require the incumbent to hold a valid Working with Children Check.

Your application must address the selection criteria.

The ability to demonstrate evidence of these skills and attributes is essential.

[#mathematical sciences](#) [#mathematics](#) [#research](#)
[#partial differential equations](#) [#computational mathematics](#)

RESEARCH SCIENTIST - ENVIRONMENTAL STATISTICIAN

CSIRO / Queensland / Full Time / \$92K - \$100K +

- You have an interest and commitment to solving real-world problems in the marine/environmental space?
- Add value and work on a range of natural resource management issues
- Join CSIRO Data61, the largest data innovation group in Australia

The Position

Our world is changing fast and data is the basic currency of this new world. CSIRO Data61 is Australia's leading digital research network and focus on a data-driven future.

CSIRO Data61 are seeking a talented quantitative researcher to join our team of environmental statisticians in Brisbane. In this role you will be working on a range of problems in natural resource management, particularly in marine and coastal applications.

The CSIRO through Data61 is seeking to deepen its abilities to undertake statistical and quantitative research to underpin sustainable marine conservation and development. Areas of research include design and analysis of marine monitoring programs, including spatio-temporal modelling, in both marine conservation areas and locations that may be affected by mining.

Your success in this role will be underpinned by your record of science innovation and creativity, plus your ability and willingness to incorporate novel ideas and approaches into scientific investigations.

To be considered you will hold a doctorate (or masters with equivalent skills and experience) in a relevant discipline area, such as statistics, applied mathematics, or in a relevant application domain (e.g. environmental science, marine ecology) with a demonstrably strong quantitative component.

You will also have a demonstrated ability to manipulate, analyse and make inference from data and strong programming skills (e.g. R, Python or equivalent) to undertake customised statistical data analyses.

[#data analysis](#) [#data analytics](#) [#data science](#)
[#statistics](#) [#applied mathematics](#) [#modelling](#)



Pursue your passion for maths at UQ

Turn your passion for mathematics into a high achieving career in mathematics, statistics, actuarial studies, quantitative finance, meteorology, bioinformatics, teaching or in one of the many industry sectors where it plays an essential role.

At The University of Queensland you can choose from the broadest range of specialisations in pure mathematics, applied mathematics and statistics with Bachelor programs in Mathematics, Science, Advanced Science and Arts, or expand your options with a dual program.

UQ also offers postgraduate study options in data science, mathematics, financial mathematics and statistics.

Build your mathematical knowledge and develop your advanced critical, analytical and abstract thinking skills in classes taught by world-class researchers and participate in industry projects, research-based courses, and an active student society.

Find out more: future-students.uq.edu.au



THE UNIVERSITY OF QUEENSLAND AUSTRALIA

CREATE CHANGE



CRICOS Provider 00058B



“ I USE MATHS AND STATISTICS EVERY DAY TO MAKE SENSE OF OUR FORESTS AND DEVELOP SUSTAINABLE MANAGEMENT PRACTICES. I’M LUCKY TO DO WHAT I LOVE AND TO HELP MAKE THE WORLD A BETTER PLACE. ”

CRISTINA APONTE

Forest Scientist – The University of Melbourne

I’m fascinated by forests. How they grow, how they die, and how they’re affected by fire, climate change and land management. It’s complex but managing and understanding forests now means keeping them healthy for future generations.

When I first went to university to study a Bachelor of Environmental Science I thought maths and statistics was a waste of time! How will I ever use this in the real world?

I could not have been more wrong, I use maths every day to help protect Victorian forests. It’s a tool to help me and

my team understand how they work, as well as measure their health and the services and resources they provide.

A two-year Masters of Environmental Management in Greece, sounded like a fun adventure when I was a bit younger. It sparked a love of research so I decided to keep going with a PhD.

Working in the field of forest sciences has had its challenges, especially juggling being a lecturer and a mum of three, but I am so lucky to be able to play my part and protect a small part of our beautiful world.

CRISTINA'S CAREER JOURNEY



When we think of health, doctors and nurses immediately spring to mind. However, mathematics and statistics professionals are essential to Australia's future health and wellbeing.

Gathering data and performing statistical analysis plays a vital role in managing infectious diseases, developing virtual reality technology, engineering prosthetic limbs, testing new drugs and improving patient care.

Epidemiologists use maths and stats to map diseases and understand their cause and spread. With the potential for whole communities to be impacted within a short time, mathematical models can be literal lifesavers in the face of an outbreak.

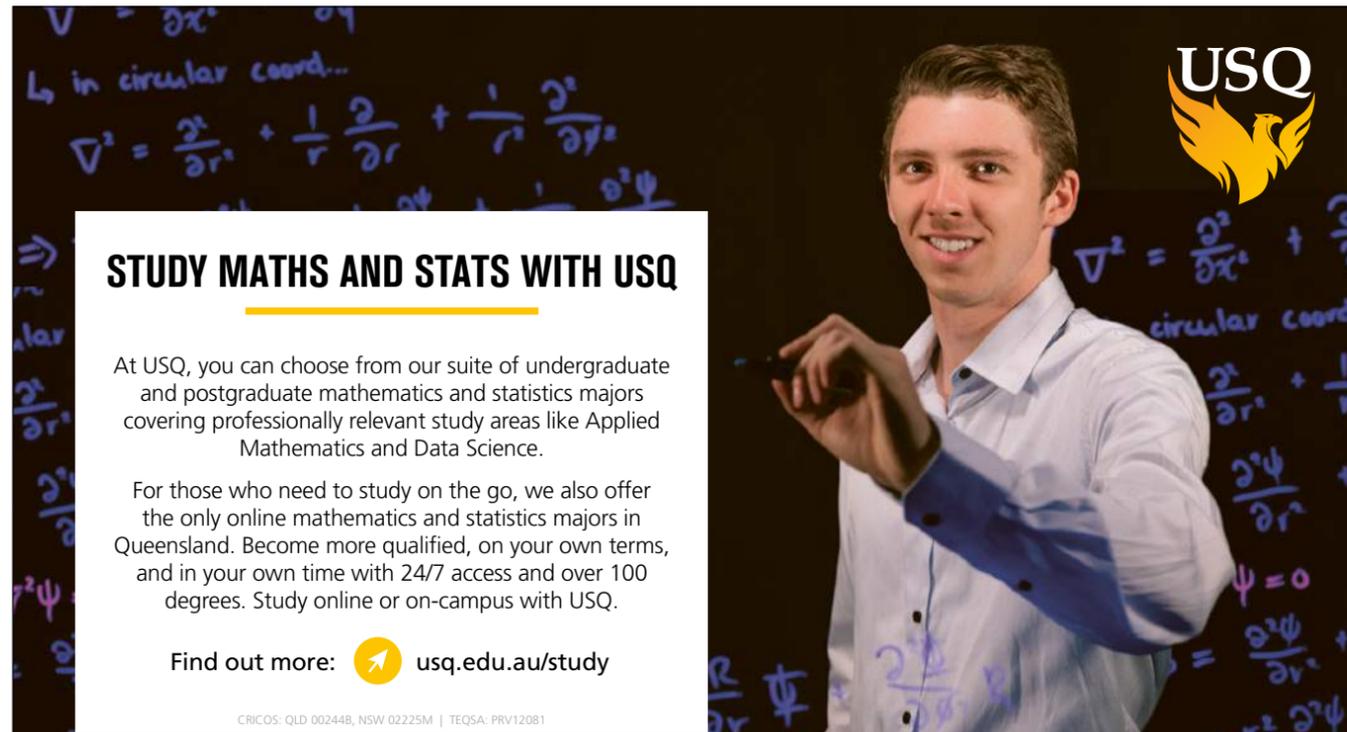
Our genetic information holds a blueprint for our health, providing insights to help us prevent, manage and treat disease. As doctors, clinicians and researchers collect more genetic information from patients, mainstream personalised medicine seems more likely.

It wasn't long ago that biomedical engineering seemed like science fiction, but as technology and data analysis advances, breakthroughs, virtual reality and artificial intelligence are rewriting life in and beyond the operating theatre. A new world of possibility is opening up with advances in 3D organ printing and major developments in prosthetics.

Maths and stats also allow us to help plan communities and understand how and why we use spaces to support good health.

By crunching the numbers you can give Australians a healthier and brighter future.





STUDY MATHS AND STATS WITH USQ

At USQ, you can choose from our suite of undergraduate and postgraduate mathematics and statistics majors covering professionally relevant study areas like Applied Mathematics and Data Science.

For those who need to study on the go, we also offer the only online mathematics and statistics majors in Queensland. Become more qualified, on your own terms, and in your own time with 24/7 access and over 100 degrees. Study online or on-campus with USQ.

Find out more:  usq.edu.au/study

CRICOS: QLD 002448, NSW 02225M | TEQSA: PRV12081

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SA's No. 1 University for graduate careers.*

If you're interested in STEM, study with UniSA to see where your passions can take you. Prepare for your future career with a degree in Science, Information Technology, Engineering or Mathematics, including Data Science, Cybersecurity and much more. Visit study.unisa.edu.au

 University of South Australia

On Campus. Online.

88100663_CRICOS PROVIDER NO 001218

QILT: Graduate Outcomes Survey 2016-18 – Full-time Employment Indicator (Undergraduate). Public SA-founded universities only.

LEAD ANALYST/STATISTICIAN

Bureau of Health Information / Sydney / Full Time / \$124,277–\$148,690+

Where you'll be working

The Bureau of Health Information (BHI) is a board-governed organisation that provides independent reports on the performance of the NSW public healthcare system. Our vision is that BHI is the trusted provider of healthcare performance information that our information is used to inform decisions, and that patients' experiences and outcomes of care in NSW continue to improve.

BHI's primary purpose is to provide timely, accurate and comparable information on the performance of the NSW public healthcare system in ways that enhance the system's accountability and inform efforts to improve healthcare.

BHI nurtures a culture of teamwork, innovation and excellence. Our people are health services researchers, biostatisticians and data analysts, graphic designers, communication and data visualisation specialists, and corporate support staff. BHI shares the CORE values of NSW Health – Collaboration, Openness, Respect and Empowerment.

What you'll be doing

The Lead Analyst/Biostatistician will work with the support of their Director, in collaboration with other staff and with advice from stakeholders to (a) lead high quality, advanced statistical analyses and provide interpretation in investigations of variation in health system performance, (b) manage and mentor other analysts, including influencing the allocation of work and overseeing quality assurance in relation to more junior analysts, and (b) contribute to appropriate positioning of the Bureau as a respected and trusted provider of timely, accurate and comparable information on the performance of the NSW public health system.

Selection Criteria

- Superior **analytical skills** including demonstrated ability conducting extensive **data analysis** and interpretation of healthcare evidence and improvement strategies; developing and validating methods and measures of health system performance; preparing and presenting analysis and reports; and developing associated information or resources.
- Demonstrated experience in all aspects of project management and implementation including management of multiple and concurrent complex projects with conflicting milestones and deadlines and leading multidisciplinary project teams.
- Extensive experience and expert knowledge using **statistical analysis software** such as SAS or equivalent, and able to interpret **complex statistical information** for a range of audiences.
- Demonstrated experience leading, supervising and mentoring analysts and providing guidance and support to improve analytical capabilities of staff within an organisation.
- Extensive knowledge of healthcare data collections, including their strengths and limitations.
- Highly developed interpersonal skills with demonstrated experience developing effective professional relationships with internal and external stakeholders including liaising with and influencing stakeholders in the achievement of organisational goals.
- Advanced oral and written communication, interpersonal, negotiation, consultation and presentation skills.
- Proven strengths in all aspects of staff management.

#data analysis #statistics
#statistical analysis #statistics skills

OKAY

SO HERE'S WHAT YOU NEED TO **KNOW!**

THE MATHS

CALCULUS
ALGEBRA
PROBABILITY
STATISTICS
MODELLING
TRIGONOMETRY
MACHINE LEARNING

THE JOBS

PHARMACIST
EPIDEMIOLOGIST
STATISTICIAN
BIOENGINEER
URBAN PLANNER
MEDICAL RESEARCHER

THE EMPLOYERS

HOSPITALS
UNIVERSITIES
GOVERNMENT
HEALTH-RELATED BUSINESSES
PUBLIC HEALTH ORGANISATIONS
PHARMACEUTICAL COMPANIES



Multiply your options

Statistics, Analytics and Mathematics at RMIT University is outcomes-focused.

Our programs develop your analytical and problem-solving skills so that you can apply your knowledge to banking and finance, sports analytics, engineering, environmental modelling, biomedical research, cyber security, logistics, business and more.

An emphasis on work-integrated learning and placements ensure you have the skills to help organisations make informed, data-driven decisions.

Flexible learning opportunities include the option to study a semester at one of our partner universities in Europe, Asia or the Americas.

Study programs include:

- Bachelor of Analytics
- Bachelor of Science (Mathematics)
- Bachelor of Science (Statistics)
- Master of Analytics
- Master of Data Science
- Master of Statistics and Operations Research
- Master of Cyber Security

www.rmit.edu.au/science
CRICOS provider number: 00122A



“ MATHEMATICS IS A SUBJECT THAT WILL CHALLENGE YOU, TAKE YOU TO THE FRONTIERS OF UNDERSTANDING, EXPAND THE SCOPE FOR YOUR CREATIVITY, & OPEN ENDLESS POSSIBILITIES. ”

PROFESSOR MICHELLE SIMMONS AO

2018 Australian of the Year
Quantum Physicist - University of NSW

DATA ANALYST

Woolcock Institute of Medical Research / Sydney / Full Time

The Woolcock Institute of Medical Research is a not-for-profit, internationally recognised research leader in the fields of respiratory disease and sleep disorders. With a world class network of specialised researchers and clinicians, the Institute is committed to improving the respiratory and sleep health of all Australians through research, diagnosis, treatment, education, prevention and care.

The Woolcock is seeking a full-time Data Analyst to provide support across several NHMRC funded projects. The role will involve database management, including the reporting, for a range of epidemiological studies and clinical trials as well as providing data management support and guidance to staff and students.

Job Role and Responsibilities:

- **Statistical analysis** (SAS) and preparation of **data** for research meetings, conferences and in medical journals
- Consultancy (both **statistical** and in database management)
- Implementation of randomisation **algorithm**
- Supporting research students to undertake data management

Essential Criteria:

- Completion of a relevant degree with research experience, or an equivalent combination of qualifications and experience
- High level programming skills in SAS with a good understanding of SASSQL
- Demonstrated, high level understanding of database management and their development with excellent knowledge of SQL-type queries
- Proven experience implementing data management for research or a health related industry
- Demonstrated high level computer literacy, methodological, and report writing skills
- Excellent written and spoken communication skills
- An ability to work collaboratively with teams of researchers
- Demonstrated ability to handle concurrent demands with attention to detail, exercising initiative and maintaining confidentiality

#data analysis #statistical analysis #statistics #algorithm

DATA ANALYST

First People Recruitment Solutions / Canberra

Our Federal Government client is seeking an APS5 **Data Analyst** to commence as soon as possible to work within the Future of Work Taskforce, Youth and Programmes Group.

Key responsibilities of this position include, but are not limited to:

- Responding to ad hoc labour market research requests
- Prepare labour market policy implications as they relate to research projects
- Proficiency in using software packages such as SQL, SAS, STATA, Excel, SAS EM and/or Qlik Sense
- Conducting complex research on labour market data, possibly including text mining
- Building relationships with stakeholders, particularly policy and programme officers who make use of the data, to ensure high quality fit-for-purpose reporting products
- Effectively communicating the results of **data analysis** both verbally and in writing to a diverse range of audiences

Applicants will need to demonstrate the following:

- Bachelor in Economics/Statistics or Data Science (essential)
- Experience using Excel, SQL, SAS, STATA and/or Qlik software (essential)
- Experience **analysing large data sets**, demonstrated understanding or knowledge of labour market data and data sources.

#data analysis #statistics #data science #data

“ THE PERFECTION REQUIRED IN MATHS IS A GREAT TRAINING GROUND FOR BRAIN, SPINE AND NERVE SURGERY. ”



LISA BANH

Neurosurgery Registrar – John Hunter Hospital

Life looks very different to what I imagined when I was 15. I didn't know what I wanted to do – we're pressured to commit to a career so early in life. I wanted to go to uni, so I chose maths and science subjects to keep my options open.

I stumbled into neurosurgery by accident, that sounds strange, but I certainly didn't think I would be doing this job while at high school. My maths skills prepared me well for the complex and mentally demanding role of a neurosurgeon.

Skills like problem-solving, sequential reasoning and pattern recognition make me a better surgeon. The perfection required in maths is a great training ground for brain, spine and nerve surgery.

Success for me isn't fame or fortune. It's making the lifelong commitment to learning required by medicine and getting out of bed at 5am excited for what every day brings. My future plans? Staying a kind person and a compassionate neurosurgeon who changes lives.

LISA'S CAREER JOURNEY

BMedSci Hons: Bachelor of Medical Science

> Doctor of Medicine > Australian Neurosurgery Registrar Program

ENGINEERING & RESOURCES

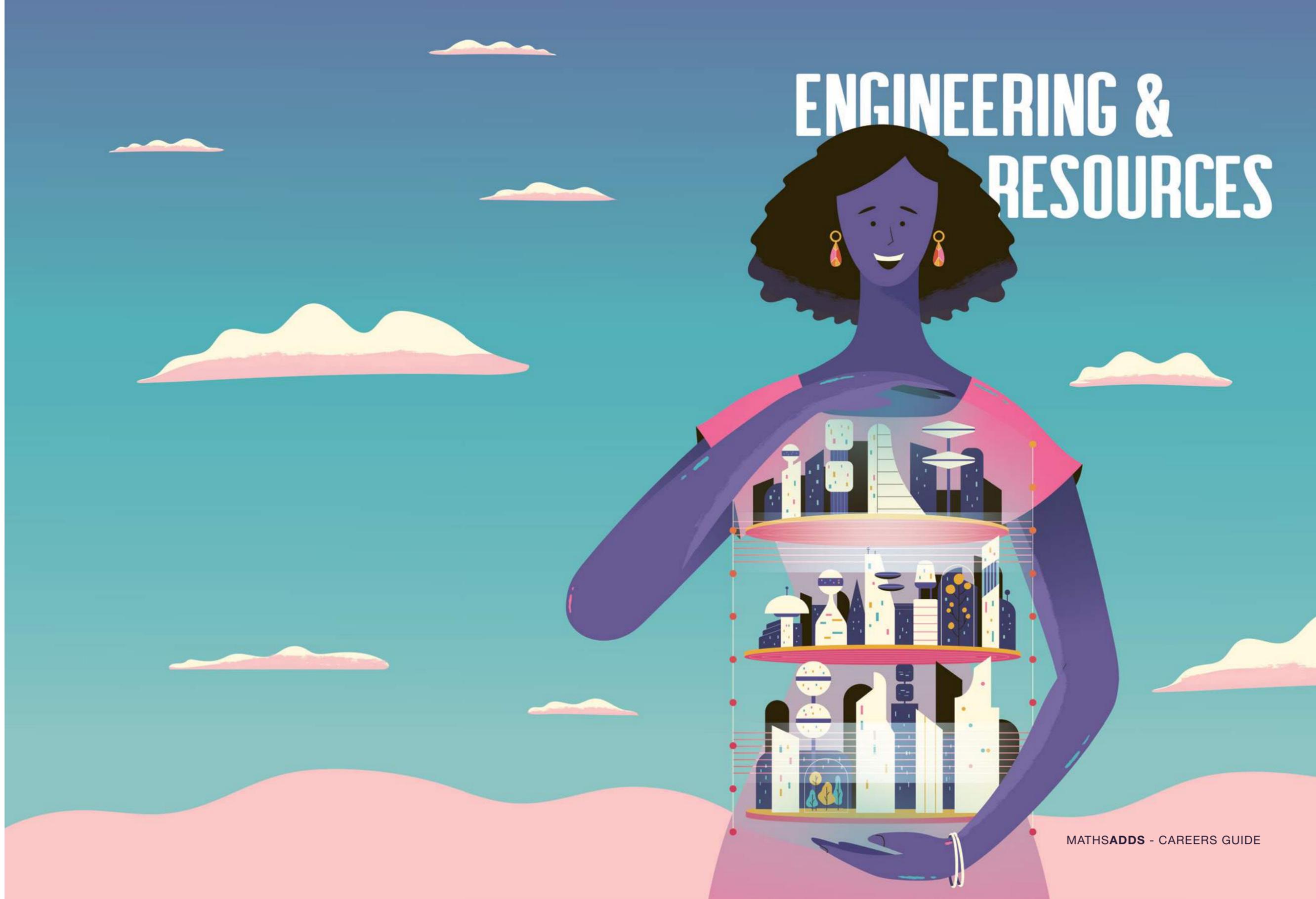
Innovative problem solvers, engineers use mathematical and statistical tools to help shape our world for the future. Advancements in robotics, infrastructure, chemical processes, software and machines, have seen jobs in the sector have rise by 50 per cent over the last four years.

From roads, buildings and waterways to transport infrastructure, civil engineers are in critical demand to design cities to cope with global population expansion and increased migration to urban areas. This requires high-level analytical thinking and problem solving, skills developed through long-term maths study.

You might be reading this on a mobile or laptop, this would not be possible without the expertise of a software engineer. In high demand as companies respond to automation and technological advancement, they design the networks and software that support our traffic lights, train networks and even the broadcast of your favourite morning TV shows.

Engineers are optimisers, their skills are needed in some of Australia's biggest industry sectors such as aviation, energy and mining and resources. They lead the charge to help us take off, increase efficiency and find solutions to secure our future.

Choosing maths opens opportunities to change the world by tackling some of our biggest challenges.



LEAD DATA SCIENCE

BHP / Queensland / Full Time

About BHP

At BHP we support our people to grow, learn, develop their skills and reach their potential. With a global portfolio of operations, we offer a diverse and inclusive environment with extraordinary career opportunities. Our strategy is to focus on creating a safe work environment where our employees feel strongly connected to our values and objectives, and where the capability of our people is key to our success. Come and be a part of this success.

Join our new Centre of Excellence (Maintenance)

BHP Billiton's Maintenance Centre of Excellence (MCoE) has come together in a dedicated, innovative team focused on identifying, achieving and maintaining the highest standards in maintenance for BHP Billiton globally. As a member of our MCoE team, you will have the opportunity to collaborate with other high performers to redefine the way we execute maintenance at our operations around the world. You will help deliver a safe, significant, and sustained improvement in the performance of our equipment and machinery fleet – from 390 tonne haul trucks to underground rail networks to automated ship loaders, and everything in between. You will be part of a contemporary, CBD based team utilising innovative approaches, tools and technology to add real value to maintenance – setting new standards to guide improvement activity, transforming services and supporting our people. This globally-focused role will be performed from our Centre of Excellence, where your diversity of thought and experience will be embraced and you will be empowered to make a real difference to our business. You will lead a highly skilled team that creates Maintenance and Reliability [quantitative models](#) involving techniques such as [statistical modelling](#) and [prediction, machine learning](#). The team's projects will be all undertaken within a project management framework and mindset.

About the role

This opportunity exists for a high performing Analytics Leader to manage a team of [Analytics](#) and [Data Science](#) Specialists. You will be responsible for the mentoring and coaching team members to achieve superior results for the broader team.

Reporting to the Manager of Data Analysis and Analytics you will also be responsible for:

- Success of the team through your influencing skills, and proven ability to manage change;
- Leading the team through change and successful adoption of new practices.

- Ensuring the team delivers value-adding [analytics](#) projects within a fast paced industrial environment will be highly regarded;
- Influencing skills; within your team, across your peers and with senior leaders. A key component of this role is engaging and supporting the business to lift its thinking and understanding of the benefits of Analytics – which will be achieved through creating a culture of engagement;
- Ensuring team's work is developed with accurate and complete information, documentation and data;
- Ensuring common [analytics methodology](#) is uniformly deployed and executed against and across the business.

About You

You will have proven experience in a similar role ideally with a background in project management and business consulting. You will also be Degree-qualified in a relevant discipline (eg Engineering, mathematics, IT), with experience or a keen interest in Data Analytics. You will have an understanding of emergent technologies like cloud computing and big data. With a demonstrated ability to build collaborative relationships. Thus, we encourage individuals from all industries and backgrounds to apply, particularly those with consulting experience.

As the collaborative leader you will also be capable of coaching and mentoring teams to support the development of [analytics solutions](#). You will have superior communication skills to demonstrate that you are capable of developing cross-functional relationships to partner with and influence stakeholders within our business.

It is essential that you are a team player who promotes and supports workplace diversity. Understanding and articulating the benefits and value of standardisation in a global environment will be a key enabler of success in the role.

Bilingual (Spanish/English) speaking ability would be highly regarded (although not essential) for this position.

[#analytics](#) [#data science](#) [#data analytics](#)
[#big data](#) [#machine learning](#) [#statistics](#) [#modelling](#)
[#predictive modelling](#) [#quantitative modelling](#)

PROGRAMMER AND MATHEMATICIAN

Intelligent Energy Systems / Melbourne / Full Time

Our company has established itself as a leader in the design, [modelling](#), and [analysis](#) of energy markets. We have over 30 years of demonstrated success in providing services to the whole gamut of stakeholders to the energy markets: including governance and regulation, generators, system control, energy traders, high volume industrial energy consumers, and even end users such as small business and residential customers.

Our passionate team prides themselves on having pioneered a number of market reforms over the years around Australia, Asia, and across the globe, resulting in fairer, more stable, and more dynamic markets.

We produce a number of industry-leading desktop, web, and mobile applications related to energy market [data analytics](#), reporting, [visualisation](#), market [modelling](#) and [optimisation](#), and more.

We're looking to grow our expert team, and are looking for enthusiastic applicants with demonstrated skills and experience in [mathematics](#) and programming.

To be successful in this role, you will have:

- A tertiary qualification in [mathematics](#), physics, engineering, or related discipline. Honours, Masters, or PhD are highly valued also.
- Demonstrated ability to program in an object-oriented language, such as C++, Java, or preferably C#.
- Demonstrated understanding of and experience with theory and practice of [mathematical optimisation](#), particularly [linear and integer programming](#), as well as [non-linear optimisation](#).
- Experience with [mathematical computing](#) environments such as MATLAB or Octave.
- Ability to effectively work alone or in a team.
- Ability to manage competing deadlines and priorities.
- An enthusiasm for solving challenging problems in mathematics, statistics, optimisation, data analysis, and machine learning.

Highly-valued skills relevant to this position include:

- Experience working with energy markets, in for example in electricity generation or trading.
- Understanding of and experience with dynamic programming.
- Understanding of and experience with [statistical analysis](#), in particular Bayesian statistics.
- Understanding of and experience with control theory.
- Understanding of and experience with [machine learning](#) approaches for both classification and regression, especially for time series data.
- Experience working with [large data sets](#), as well as competence with SQL.
- Experience with desktop application development (.Net, WPF)
- Experience with web development (HTML/CSS/Javascript).
- Experience with mobile app development (Xamarin, Cordova, etc.)
- Chinese language skills (written)

[#modelling](#) [#data analysis](#) [#optimisation](#)
[#visualisation](#) [#data analytics](#) [#mathematics](#)
[#statistics](#) [#machine learning](#) [#statistical analysis](#)

OKAY
SO HERE'S WHAT YOU
NEED TO KNOW!

THE MATHS

ALGEBRA
 CALCULUS
 GEOMETRY
 TRIGONOMETRY
 PROBABILITY
 STATISTICS
 OPTIMISATION

THE JOBS

ENGINEER
 PROGRAMMER
 SOFTWARE DEVELOPER
 SYSTEMS ARCHITECT
 ENVIRONMENTAL
 ENGINEER
 WATER SPECIALIST
 SUPPLY ANALYST
 PROCESS ENGINEER

THE EMPLOYERS

MINING & RESOURCES
 COMPANIES
 ENGINEERING FIRMS
 CONSTRUCTION
 COMPANIES
 MANUFACTURING
 COMPANIES
 TECHNOLOGY COMPANIES

Join the Australian Bureau of Statistics – A career with impact!

We are seeking highly skilled mathematics and statistics graduates to join our team.

You will work in a dynamic environment, applying analytical thinking to inform Australia's important decisions.

Register your interest at abs.gov.au/careers

Follow us    @absstats  ABSstatistics
 Australian Bureau of Statistics



1959–2019
Graduate
Development
Program



ABS831635

More than a number

When you study maths and statistics at Swinburne University of Technology you'll be more than a number.

You can investigate the physical world, society, health science, consumer behaviour, finance and even the weather through the lens of applied maths or statistics in a class where the lecturer knows your name.*

To learn more about our Bachelor of Science majoring in Applied Mathematics visit swinburne.edu.au/science.

For the Bachelor of Health majoring in Applied Statistics visit swinburne.edu.au/health.

Call 1300 275 794 for more information on both courses.



SWINBURNE

SWINBURNE UNIVERSITY OF TECHNOLOGY

*Swinburne has a 5-star rating for student-staff ratios from QILT Student Experience Survey 2017.

CRICOS 00111D RTO 3059

“ WE ASPIRE TO BE A COUNTRY WHERE PEOPLE FEEL THAT THEY HAVE THE SKILLS AND CONFIDENCE TO CREATE TECHNICAL INDUSTRIES THAT ARE ROBUST AND READY FOR THE 21ST-CENTURY ECONOMIES OF THE WORLD. ”

PROFESSOR LISA HARVEY-SMITH

Australia's first ambassador for Women in STEM



Supporting education supports society.

Education is fundamental to Australia's future. Encouraging the study of science, technology, engineering and maths (STEM) is vital to fostering innovative thinking and problem solving abilities that will help to address sustainable development challenges.

That's why we're working to change the under-representation of girls and Aboriginal and Torres Strait Islander peoples in maths and science through our commitment of \$55 million to STEM education across Australia.

We've partnered with the Australian Mathematical Sciences Institute (AMSI) on CHOOSE **MATHS** which is designed to encourage girls into mathematics, and we'll keep investing in programs to increase interest and academic achievement in STEM subjects.

The BHP Foundation is a charity funded by BHP, a leading global resources company, and through our programs we address challenges that are directly relevant to the resources sector.

bhp.com/community/bhp-foundation

“ MATHS WAS A SUBJECT THAT ALWAYS MADE SENSE TO ME. NOW I'M WORKING ON SOME OF AUSTRALIA'S HIGHEST PROFILE RUNWAY PROJECTS. ”



DEMI VAN DEN HEUVEL

Civil Engineer - Becca Australia

There's a real buzz that comes from solving a big problem. As a civil engineer planning and designing airport runways, the problems I work on mean people can travel the world safely.

I'm currently working as a member of the design team on the proposed new runway at Melbourne Airport. Working on a brand new runway project is pretty cool. It's not often new runways are built in Australia so it's exciting that I've been able to work on two of them!

Maths is crucial to the whole process. It's the way engineers come up with solutions to problems. It helps me work out things like how many aircraft might land on a runway over a 20 and 40-year period, the impact of varying aircraft types, the impact of next-generation aircraft, how thick the pavement design should be to cater for take-offs and landings, and how much space to allow for planes parking, turning and refuelling.

Having a role in shaping and delivering future aviation infrastructure in Australia is hugely exciting and rewarding.

DEMI'S CAREER JOURNEY

➤ **BEng:** Civil Engineering > **Masters:** Pavement Technology
➤ Graduate Engineer > Civil Engineer

BUSINESS & MARKETING



The ability to make effective decisions in an often unstable business climate has never been more important. Data insights and predictions are essential to protect the all important bottom line.

Gone are the days when CEOs and business leaders 'followed their gut'. Graduates with maths and stats skills are in high demand to interpret and model data, optimise processes and transform companies.

A major global growth industry, analysing and measuring the marketing spend of large corporations is a must. Return on investment (ROI) is essential, with analysis on media spend, sales data and increasingly, web and social media engagement key to highlighting the effectiveness of marketing campaigns.

For startups, business forecasting, budgeting and modelling are pivotal to early success. Many of the biggest corporations of our time would not have existed without the help of mathematics, statistics and data analytics.

U Because your prime is yet to come

Undergraduate courses in: Applied Mathematics, Applied, Statistics, Data Science and Analytics, Financial Mathematics, Pure Mathematics

Postgraduate courses in: Mathematics, Financial Mathematics, Statistics, Master of Philosophy, Master of Research, Phd (Mathematics)

STUDY MATHEMATICS AT UOW
2nd in NSW/ACT for Science and Mathematics.
 Quality Indicators for Learning and Teaching (QILT) 2019.

Find the right course for you
uow.info/prime



UNIVERSITY OF WOLLONGONG AUSTRALIA

The answer to this can help predict this

$$\frac{dx}{dt} = \sigma(y-x)$$

$$\frac{dy}{dt} = x(\rho-z) - y$$

$$\frac{dz}{dt} = xy - \beta z$$


If you want to help predict the next cyclone, studying maths at Macquarie University is a great place to start. Meteorologists use models like the Lorenz equations to predict and explain atmospheric convection and other features of weather systems. Whatever your future holds, studying maths in the Bachelor of Science will give you the answers you need.

Find out more at courses.mq.edu.au/BSc



MACQUARIE University

ARTIFICIAL INTELLIGENCE RESEARCHER

Kepler Analytics / Melbourne / Full Time / \$100k-130k

We are a rapidly growing Melbourne-based [analytics](#) startup looking for outstanding talent to join the team to help us accelerate the transformation of the retail industry using [data](#) and [artificial intelligence](#).

We are looking for world class AI researchers to help build new [machine learning algorithms](#) that transform business process and management frameworks within large enterprises. You will invent, implement, and deploy state of the art [machine learning algorithms](#) and systems. You will build prototypes and explore new solutions.

A successful candidate will be a person who enjoys diving deep into data, doing analysis, discovering root causes, and designing long-term solutions. It will be a person who likes to have fun, loves to learn, and wants to innovate in the world of AI.

Key responsibilities include:

- Being able to deliver a [Machine Learning](#)/Deep learning project from beginning to end, including understanding the business need, aggregating [data](#), exploring data, building & validating [predictive models](#), and deploying completed [models](#) to deliver business impact to the organisation
- Use Deep Learning frameworks like MXNet, Caffe 2, Tensorflow, Theano, CNTK, and Keras to help our customers build DL models
- Use SparkML and other machine learning frameworks to help our customers build ML models
- Work with Data Engineers to analyse, extract, normalise, and label relevant data
- Work with Engineers to help our customers operationalise models after they are built
- Research and implement novel ML and DL approaches

Basic qualifications:

- A Bachelor or Masters Degree in a highly quantitative field (Computer Science, Machine Learning, Informatics, Operational Research, [Statistics](#), [Mathematics](#), etc.)
- 4+ years of industry experience in [predictive modelling](#), [data science and analysis](#)
- Previous experience in a ML or data scientist role and a track record of building ML or DL models
- Experience using Python and/or R
- Knowledge of SparkML
- Able to write production level code, which is well-written
- Experience using ML libraries, such as scikit-learn, caret, mlr, mllib
- Experience working with GPUs to develop models

- Experience handling terabyte size [datasets](#)
- Track record of diving into data to discover hidden patterns
- Familiarity with using [data visualisation](#) tools
- Knowledge and experience of writing and tuning SQL
- Past and current experience writing and speaking about complex technical concepts to broad audiences in a simplified format
- Experience giving data presentations
- Extended travel to customer locations may be required to deliver professional services, as needed
- Strong written and verbal communication skills

Preferred qualifications:

- PhD in a highly quantitative field (Computer Science, Machine Learning, Informatics, Operational Research, [Statistics](#), [Mathematics](#), etc.)
- 2+ years of industry experience in [predictive modelling and analysis](#)
- Good skills with programming languages, such as Java or C/ C++
- Ability to develop experimental and analytic plans for [data modelling](#) processes, use of strong baselines, ability to accurately determine cause and effect relations
- Consulting experience and track record of helping customers with their AI needs
- Publications or presentation in recognised Machine Learning, Deep Learning and Data Mining journals/conferences
- Combination of deep technical skills and business savvy enough to interface with all levels and disciplines within our customer's organisation
- Demonstrable track record of dealing well with ambiguity, prioritising needs, and delivering results in a dynamic environment

Key values we are looking for are:

- Absolute care for the end result
- Willing to constantly learn
- Commitment to helping the team and our clients succeed

Being a rapidly growing team that's expanding globally, the work environment is very dynamic and projects can be intensely challenging. But if you care about working hard and seeing your efforts make an immediate difference in the real world, this is the place you'll want to be.

[#machine learning](#) [#data](#) [#algorithms](#) [#analytics](#)
[#data analysis](#) [#predictive modelling](#) [#data science](#)
[#data visualisation](#)

OKAY

SO HERE'S WHAT YOU NEED TO KNOW!

THE MATHS

LINEAR ALGEBRA
 CALCULUS
 PROBABILITY
 STATISTICS
 OPTIMISATION
 MATHEMATICAL MODELLING

THE JOBS

BUSINESS ANALYST
 MARKETING ANALYST
 DATA SCIENTIST
 QUANTITATIVE ANALYST
 MARKET RESEARCHER

THE EMPLOYERS

ACCOUNTING & FINANCE FIRMS
 INSURANCE COMPANIES
 AUSTRALIAN BUREAU OF STATISTICS
 ADVERTISING & MARKETING COMPANIES
 CONSULTING FIRMS
 GOVERNMENT AGENCIES

SEVEN OF THE TOP TEN

BEST JOBS GLOBALLY

BASED ON JOB OUTLOOK, LIFESTYLE & INCOME CALL FOR MATHS & STATS

Career Cast

careercast.com/jobs-rated/best-jobs-2017

GRADUATE/JUNIOR MARKET RESEARCHER

Conjoint.ly / Sydney / Full Time / \$70,000+

Conjoint.ly is on a mission to make market research a breeze. We are a Sydney-based startup offering automated market research services to big and small companies (mostly in USA and Europe). As we grow (in number of products we offer and in clients' awareness of us), we need a reliable and driven person to join our very small team.

This job wins over working for a normal market research firm for the following reasons:

- You will be integral to our day to day operations and will have a very real direct impact on the business.
- You will have opportunities for professional growth as fast as our operations grow.

Your role will centre on customer and research support, and will include:

- Customer support: Helping our users do the best market research on our platform, including support via email, web-chat, and over the phone
- Research support on projects commissioned by clients and in online fieldwork (i.e., making sure we have the right people answering our surveys)
- Marketing: Preparing marketing and sales materials
- Product testing: Making sure our tools are client- and respondent-ready by running trial research projects

Requirements:

- Reliability and drive
- An interest in both market research and technology
- One of the following:
 - A degree in Marketing, other business-related disciplines, Statistics, or Mathematics with Distinction or High Distinction average, OR
 - One year experience of working in market research, marketing, or product management
- Intermediate skills in:
 - Statistics (you need to be able to explain how the following things work: t-test, multiple regression, logistic regression, Bayesian vs Frequentist, AIC)
 - Excel (index-match, pivot tables, etc.)
- Basic skills in:
 - Google Docs
 - PowerPoint

Australian citizen or permanent resident (strictly no other options)

#market research #statistics

SENIOR DATA ANALYST

The Pharmacy Guild of Australia / ACT / Full Time

The Pharmacy Guild of Australia represent their members who are the proprietors of community pharmacies. They form a unique network of trusted healthcare professionals across Australia. The Guild is committed to offering staff a supportive, flexible and rewarding working environment and conditions.

The Guild is currently recruiting for a Senior [Data Analyst](#). This role is centred on enhancing the Guilds data assets, though [analysis](#) of current data, improvements to data warehousing and linkages, as well as establishing new data sources. This involves a combination of technical skills, experience analysis and strong interpersonal communication.

This role is a permanent full time position based at the National Secretariat in Canberra.

To be considered for this role you will need to address the following selection criteria:

- Demonstrated experience in building, and maintaining an SQL data warehouse and creation of complex extracts
- Demonstrated experience working with R and Python
- Demonstrated ability to create informative conclusions from data through [data analysis](#), geospatial mapping skills are desirable.
- Experience in stakeholder engagement and possessing well-developed written and oral communication skills
- Advanced Microsoft Excel skills including working with large complex workbooks and using advanced nested and [statistical functions](#)
- Project management including experience in completing complex projects to a high standard on schedule

The following qualifications are essential for this position:

Tertiary qualification in a quantitative field such as computer science, information systems, statistics, mathematics, economics, finance, actuarial, engineering or 5-10 years of experience in data analysis role focussed on SQL relational databases.

#data analysis #data analyst #statistics



The careers of the future count on maths and stats

75% of the fastest growing jobs in Australia require maths and stats on a daily basis.

A diverse range of industries now count mathematicians as their most valued employees.

Finance, engineering, teaching, government, computing and research are just some examples of industries that rely on mathematical skills

With UWA's flexible course structure, you can combine your passion for maths with your interests in just about any industry.

You'll enter the work force with more than just a maths degree; you'll possess the critical skills that employers value most.

study.uwa.edu.au/courses/mathematics-and-statistics



CRICOS Provider Code: 00126G OF#352729

“ LARGE GLOBAL BRANDS NEED TO BE ABLE TO JUSTIFY THEIR MARKETING SPEND. I USE MATHS TO WORK OUT THE BEST WAY THEY CAN DO THAT. ”



LESLEY WEST

Marketing Analytics Director – Data 2 Decisions

Marketing analytics is a practical application of maths to quantify and understand how effective advertising is or can be. In simple terms, I work with global brands to help them understand where their advertising and media budget is going and how they could use it more effectively.

In today's climate, marketing teams normally can't just spend their budget and not justify where it's going and how it's working – that's where I come in. Working with sales data, media spend and other variables, we can build statistical models to determine the impact advertising has on sales. The data can tell us the best channels (TV, radio

or online) and when to start a campaign to get the best result. Great information for a Chief Marketing Officer to have when they ask for a bigger advertising budget.

Don't be afraid of the things that seem daunting or hard, especially when it comes to numbers. Maths, data and statistical skills are needed now more than ever.

Celebrate what makes you different. If you find something you enjoy learning about, your career will take care of itself. Applying maths to a commercial problem and communicating the outcomes is part of what makes me special. How about you?

LESLEY'S CAREER JOURNEY

➤ **BSc: Statistics** > **Postgraduate Study: Statistics** > **Consultant Analyst**
> **Marketing Analytics Director** > **Analytics & Insights Lead**

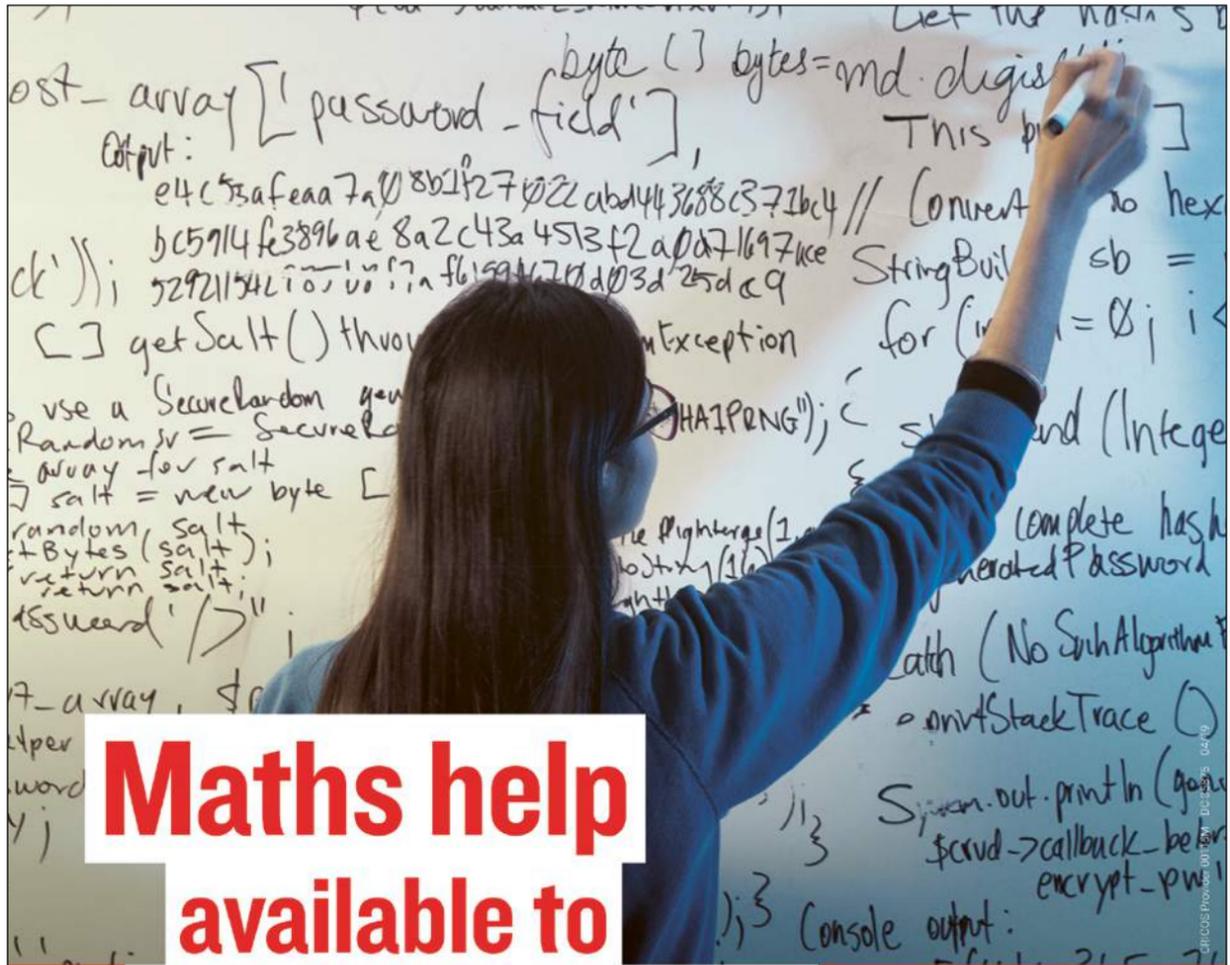


From personal banking and investment apps to wearable payment devices, quantitative techniques and the emergence of financial technologies or – FinTech – has transformed financial services.

Advancing technology means automation and emerging opportunities with big data, mathematics and statistics skills are in demand across the finance and banking sectors.

The rise of cryptocurrencies like Bitcoin has put blockchain technology in the spotlight with advances in this area opening more uses across the financial sector. While the media hype around Bitcoin may have subsided, digital currency is here to stay.

Digitalisation and technology advancement has resulted in greater focus on data security and protection of personal information. Companies are turning to graduates with mathematics and data analysis skills to protect their online assets.



**Maths help
available to
every student.
That's clever.**

Our Maths Hub is available for face-to-face maths and statistics support to help La Trobe students succeed in their coursework.

latrobe.edu.au/maths

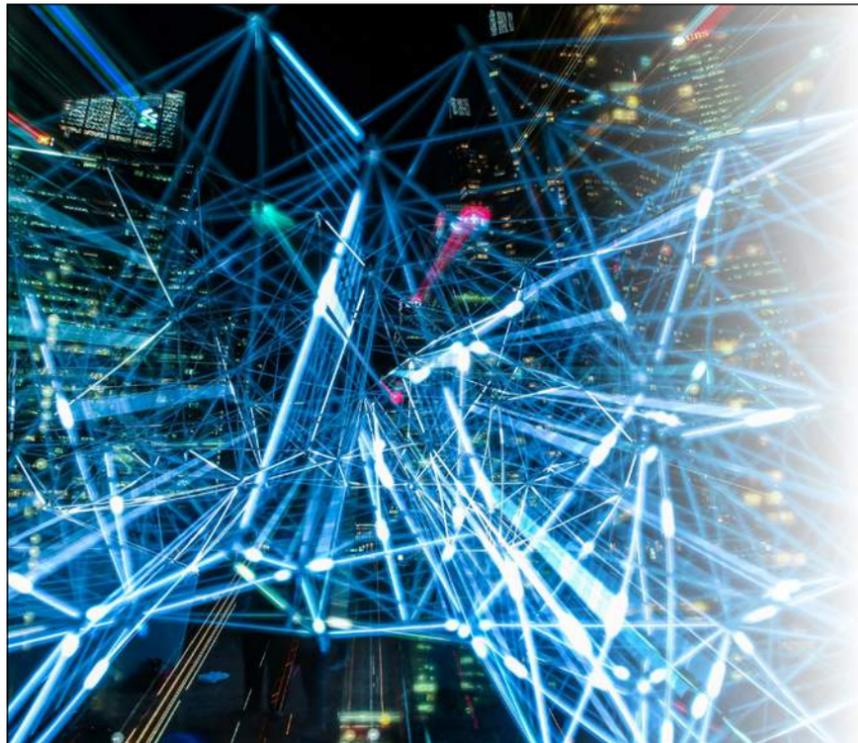


All kinds of clever

“ THE POWER OF MATHEMATICS IS NOTHING NEW. MATHEMATICIANS HAVE BEEN WINNING WARS, FIGHTING CRIME, BUILDING CITIES, TACKLING EPIDEMICS AND DRIVING RESEARCH - NOT TO MENTION GETTING RICH - FOR QUITE SOME TIME. ”

DR ALAN FINKEL AO

Australia's Chief Scientist



WESTERN SYDNEY UNIVERSITY



DATA SCIENCE

In today's and tomorrow's economy, making the best use of available data is essential in every profession.

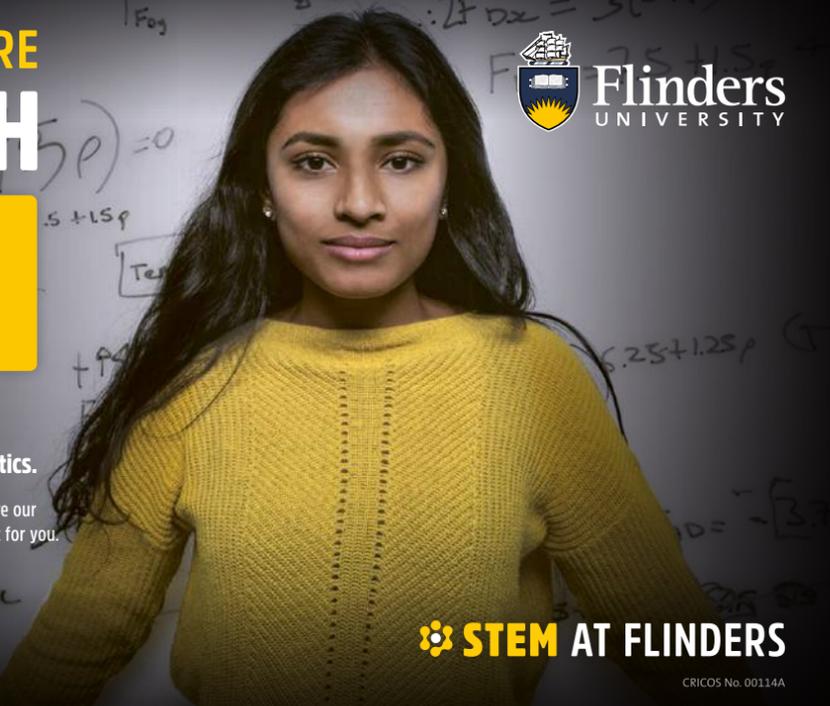
Western Sydney's new Data Science Bachelor and Master degrees give you a real advantage in a competitive environment; graduates who understand the intricacies of extracting information and knowledge from data are highly sought after, whatever their discipline.

Blend Data Science with courses like Marketing, Engineering, Information and Communications Technology, Science, or Psychology to graduate with a Bachelor double degree, or build on your existing qualifications with a Master in Data Science.

It will all add up to an unstoppable future.

westernsydney.edu.au/datascience

CAREERS OF THE FUTURE START WITH STEM



 **Flinders UNIVERSITY**

Prepare for careers of the future with STEM - Science, Technology, Engineering and Mathematics.

With flexible pathways and a cross-disciplinary approach, explore our broad range of study areas and find the STEM degree that's right for you.

Flinders courses bring STEM to life!

FLINDERS.EDU.AU/STEM

 **STEM AT FLINDERS**

CRICOS No. 00114A

GRADUATE TRADER

Optiver / Sydney / Contract/Temp

Are you a final year student or recent graduate from a **S.T.E.M** degree? Do you like challenges and want to kick start your career at one of Australia's "Best Places to Work"? Do you want to work with passionate people and apply your **quantitative** ability in a collaborative environment? If so, Optiver is the right place for you!

- Generous salary, plus an abundance of perks & benefits
- Relocation assistance provided if based outside of Sydney, including flights and accommodation
- Screen Trading and Wholesale Trading roles available

What you'll work on

Every day will present you with new problems and interesting challenges to solve. Traders are always looking for patterns, aiming to logically forecast the financial markets' next move. The markets are always changing. What worked yesterday may not work today. So, it's up to you and your team to develop strategies and use our custom built software to adjust prices, monitor positions and make trades. From your first day on the trading floor, you'll have autonomy and responsibility to make decisions and make an immediate impact. You'll be:

- Constantly looking for creative quantitative solutions to real world events ahead of the competition.
- Developing your own mathematical models and algorithms to offer the best price on the products you trade.
- Building tools, conducting analyses and leading projects that take your team's trading strategies to the next level.
- Working collectively with leading Traders, Technologists and Researchers in the industry, to stay at the top of our game.

What you'll learn

You don't need an understanding of the financial markets. Optiver can teach you that. We'll provide you with 3 months of training on everything you need to know—the theory, the markets, the strategies and the technology. You'll go through a steep and continuous learning curve that will challenge and develop you. You'll have:

- Six weeks with our dedicated Head of Trading Education, learning the basics in a classroom style environment.
- Six weeks putting your new knowledge into practice in our specially built simulated trading environment, reacting to real world scenarios with live market data.
- Multiple opportunities to shadow experienced Traders on the trading floor, as well as spending time with senior mentors.

- Within three months, you'll be trading in the live market with real money and real risk. With guidance from your experienced team, you'll be immediately contributing to our business.

Who you are

- You have a distinction average in **Maths, Statistics**, Physics, Engineering (all disciplines), Computer Science, Actuarial Studies, Applied/Quantitative Finance or Econometrics.
- You're a final-year/Honours/Masters/PhD student or a recent graduate (up to 4 years).
- You're an Australian/New Zealand Citizen or Australian Permanent Resident.

Screen Trader

You love puzzles, predictions and **problem solving**. You're always hungry to learn. You like to understand the why. You have a real passion for **quantitative problems** and a flair for numbers. You're a little curious about the financial markets and this competitive industry. You have a sense of humour and a thirst for success.

Wholesale Trader

Building rapport comes naturally to you. You enjoy developing strong relationships and you don't take yourself too seriously. You have amazing communication skills and can deal with pressure while staying focused. You're passionate about **quantitative problems** and have a flair for numbers. And you have an inherent drive to work in a rapidly-changing, sometimes uncertain environment.

Who we are

Optiver. It's a combination of the Dutch words for 'trading' and 'options'. And that's what we do. We trade options (and other financial products) in the world's markets.

Optiver has been around for more than 30 years. We're an electronic market maker operating around the globe. We work to improve the market, trading options and other financial instruments. With more than 1000 people around the world working to improve the market, Optiver's a quiet powerhouse of creative problem solving and collaboration. We like challenges. We love success. And we're proud of our culture, designed to give you plenty of opportunity and support to do amazing things.

Optiver also believes in getting better every day. Our internal learning and development programs are designed to help you get to the next level. With in-house experts, a structured learning program and plenty of opportunities to learn as you work, you're always developing new skills. Which helps when you're solving the most interesting problems in the world.

See yourself at Optiver? Take up the challenge and apply today!

[#quantitative](#) [#mathematical models](#)
[#modelling](#) [#algorithms](#) [#mathematics](#) [#statistics](#)
[#problem solving skills](#)

OKAY

SO HERE'S WHAT YOU NEED TO KNOW!

THE MATHS

STATISTICS
 LINEAR ALGEBRA
 CALCULUS
 MODELLING
 PROBABILITY

THE JOBS

BANKER
 TRADER
 ECONOMIST
 ACTUARY
 RISK ANALYST
 ACCOUNTANT
 QUANTITATIVE ANALYST

THE EMPLOYERS

BANKS
 RESERVE BANK OF AUSTRALIA
 LARGE CORPORATES
 ACCOUNTING FIRMS
 INVESTMENT COMPANIES
 INSURANCE COMPANIES
 TREASURY DEPARTMENTS

ACTUARIAL PRICING ANALYSTS X3, GI

InDmand Career Solutions / Sydney / Full Time

My client is a Financial Services organisation who continue to go from strength to strength with their innovative product suite and good governance enabling them to continue growing as we move into 2019. With a nascent new Product Pricing Team growing currently they are looking for talented and experienced Actuarial / Pricing Analysts to join their team.

I am looking for applications from candidates with strong mathematically orientated academics (BSc, MSc etc in a Maths focused Degree – e.g. Economics, Statistics, Mathematics, Actuarial Studies, Operations Research et al) and at least 12m (ideally 3 years but more experienced candidates are also encouraged to apply) experience in an Analytically focused role within a General Insurance team. In this role you will be working as part of a customer-facing team who provide internal consultancy to the business, supporting the execution of various strategies from a pricing perspective. With numerous initiatives underway your role will require a high level of technical competency (fluent programming /modelling skills/capabilities from a traditional tech – e.g. SQL, SAS, Emblem etc.- and more “data science” orientated perspective – Python, R etc.) as you will be involved building Actuarial and Statistical Models for innovations and solutions in the pricing arena.

Candidates also need a solid understanding of the GI market locally including products & services for my client as well as having a decent grasp of the competitor landscape. This is an innovative Pricing team which works pretty much end to end in comparison with traditional pricing teams and they are continually looking to new technology/ techniques (e.g. [Machine Learning](#) techniques, AI, [Data Science/ Big Data](#) approaches) in order to innovate from a Pricing perspective and deliver a competitive advantage to the business.

This is an excellent role within a team with a strong and supportive culture. This is a high performance team where what you deliver will be measured along with your ability (in the fullness of time) to suggest process improvements as well as the quality of your stakeholder relationships. With strong leadership which is well regarded in the industry this is an exciting time to be joining this function. With multiple roles available for the right candidate these opportunities offer successful applicants a very real chance to enjoy meaningful career progression over the next 2-5 years. The team is highly visible within the business where excellent work will get recognition from key people from a Senior Management level.

In short, these roles offer some of the best Pricing/Actuarial Analytical roles you are likely to find in Sydney this year. Superb opportunities.

#statistics #mathematics #analytics #modelling #modelling skills #data science #machine learning #big data #statistical models #data analyst

DATA SCIENTIST

Face2face Recruitment / Brisbane / Contract/Temp

About

Our federal government client's role has grown to meet the needs of a modern and dynamic Australia. Today they are not only the Australian government's principal revenue agency, they are also a large payer of government funds.

Duties

- Utilise data science techniques and experimental methods independently
- Develop technological solutions to achieve business outcomes
- Develop, enhance and maintain a range of mathematical models to monitor demand and analyse behaviour.
- Provide technical knowledge and expertise in reducing vast and disparate [data sets](#) into categorised and useful summaries and reports
- Manipulate and [analyse big data](#) from disparate systems
- Work with a cross functional team of [data scientists](#), [data analysts](#), report developers and engineers
- Move Proof-of-Concept models/products to production for clients.

Qualifications/Experience Required

- Qualifications in Computer Science, [Mathematics](#), [Statistics](#) or other relevant disciplines.
- Strong practical experience (preferably 5+ years' experience) across one or more data science areas such as [machine learning](#), natural language processing, [graph analytics](#), behavioural [analytics](#) and [visualisation](#).
- Strong data cleaning and [analysis skills](#), and experience in devising testing methods.
- Demonstrated knowledge and experience with a diversity of programming languages such as R (experience in Shiny will be a bonus) and Python.
- Professional commitment and skills of maintaining code quality.
- Familiarity with the Hadoop and Spark ecosystem, and experienced in Scala, PySpark and HiveSQL.

#data science #mathematical models #big data #data analytics #machine learning #mathematics #visualisation



SOLAI VALLIPPAN

Start Up Consultant & Risk Analyst

It was probably in Year 9 or 10 that I got serious about maths. I started to enjoy problem solving and loved solving equations in different ways.

The short explanation of what I do now? I'm a juggling Excel wizard. Helping businesses with all things numbers and finance. It's a cliché, but yes, my role does involve a lot of spreadsheets. My day can involve planning and forecasting, data analytics and metrics, accounting and operations, risk management and insurance, funding structures, board and investor reports and everything in between.

SOLAI'S CAREER JOURNEY

BCom: Actuarial Studies & Finance > Chartered Enterprise Risk Actuary (CERA)
> Fellow of the Institute of Actuaries of Australia (FIAA) > Actuarial Analyst

“ WHEN A COMPANY IS IN IT'S EARLY STAGES, MAKING SURE THE NUMBERS ADD UP CAN BE THE DIFFERENCE BETWEEN SUCCESS OR FAILURE. ”



Recently I moved from the big corporate world to consultancy. Now I help get startups off the ground and bring business ideas to life.

Advising early stage companies and startups is a varied space because often there aren't traditional established financial roles. It's a balancing act as you need to keep an eye on the big picture and the day-to-day. For example, you might be testing how a change in materials cost affects your profit. But as a lecturer once told me, projections in a fancy model won't matter if you don't have cash flow to pay your staff.

CAREERS IN MATHS

GROW YOUR CAREER WITH
MATHS & STATS



LEVEL 1

**ACCESSIBLE THROUGH YEAR 12
COMPLETION OR CERTIFICATE I / II**

Bank Teller | Bartender
Debt Collector | Hospitality Worker
Insurance Agent | Payroll Officer
Retail Buyer | Sales Assistant
Trades Assistant

LEVEL 2

**ACCESSIBLE THROUGH DIPLOMA
OR CERTIFICATE III / IV**

Aircraft Maintenance Engineer
Draftsperson | Biomedical Technician
Construction Manager | Cartographer
Civil Engineering Technician
Computer Technician | Data Processor
Electrician | Insurance Clerk
Laboratory Worker | Line Mechanic
Mechanical Technician | Personal Trainer
Procurement Manager
Production Manager | Telco Engineer

LEVEL 3

**ACCESSIBLE THROUGH
BACHELOR DEGREE**

Accountant | Air Traffic Control Analyst
APP Developer | Architect
Biotechnician | Business Analyst
Computer Systems Analyst
Commercial Underwriter | Cryptologist
Data Analyst | Ecologist | Game Designer
Industrial Designer | Insights Analyst
Marine Surveyor | Marketing Analyst
Nurse | Optometrist | Pharmacist
Pharmacologist | Pilot | Quantity Surveyor
Software Engineer | Systems Analyst
Teacher | Web Analyst
Web Developer | Veterinarian

LEVEL 4

**ACCESSIBLE THROUGH
BACHELOR DEGREE & POSTGRADUATE**

Actuary | Aeronautical Engineer
Auditor | Astrophysicist
Bioinformatician | Biomedical Engineer
Biostatistician | Chemical Engineer
Civil Engineer | Data Scientist
Economist | Electrical Engineer
Environmental Engineer
Financial Analyst | Forest Scientist
Football Analyst | Geologist | Geomatics
Engineer | Geophysicist
Geospatial Specialist | Mechanical Engineer
Marine Engineer | Mathematician
Meteorologist | Mining Engineer
Naval Architect | Neurosurgeon
Operations Research Analyst
Quantum Physicist | Quantitative Analyst
Risk Analyst | Research Scientist
Roboticist | Statistician | Supply Planner
University Lecturer | Zoologist

TECHNOLOGY



Digitalisation, automation, optimisation, now is the time to join the technological revolution that is transforming nearly every sector.

Computing, programming and data science all rely heavily on maths skills as well as logical thinking, problem solving skills and creativity. Our world is radically changing and with these skills you can be part of this exciting new era.

Every day the world produces extraordinary volumes of data; this information holds the key to driving a smarter, faster and more competitive business. Every card swipe, every photo share, every Google search is recorded. With a global population over 7.7 billion, it's not surprising over 90 per cent of the world's data was collected in the last two years.

As major corporations seek to harness data and drive new technologies changing how we live and work, the demand for mathematics and statistics graduates will only soar.

Robotics in medicine and surgery, drones for parcel delivery, artificial intelligence, driverless cars and virtual reality travel all sound futuristic, but may be closer than you think!

IN THE LAST 10 YEARS

STEM JOBS
GREW 24%

WHILE NON-STEM JOBS
GREW BY JUST 4%

SENIOR PYTHON DEVELOPER

GRIT Talent Consulting / Brisbane / Full Time

We are on the hunt for a Senior Python Developer to start ASAP! The successful applicant will have a tertiary qualification and three or more years experience in commercial software development.

This is a permanent role, based in Brisbane's Fortitude Valley.

Python Skills:

- Great understanding of Python
- Experience with Web App Frameworks such as Django and REST principles
- Experience with testing framework and task queue libraries (Pytest and Celery)
- Experience writing performance intensive Python code (preferred)

Programming Skills:

- Linux experience
- Database design (SQL, although key/value and document DBs experience considered)
- Web API design
- Object Oriented Programming practices
- Unit testing

An interest in mathematics would be a great advantage!

#programming skills, #mathematics

MACHINE LEARNING ENGINEER

Sustain Digital / Sydney / Contract/Temp

A rare opportunity with an exciting early stage business that will be revolutionary in its field.

To be successful in this role you will have commercial experience of [Machine Learning](#) development platforms such as TensorFlow and Theano.

This role will give you the opportunity to enhance the Machine Learning capability internally and work alongside a team of talented developers.

- Have proven experience delivering new ML projects across different platforms within small environments.
- Excellent programming language Solid programming skills with at least one language: Python, Java, Scala, R or other
- Background in Machine Learning, Deep Learning and Statistics
- MSc or PhD in Computer Science, Statistics, Computational Mathematics, or a related field

#machine learning #programming skills #mathematics #statistics

OKAY
SO HERE'S WHAT YOU
NEED TO KNOW!

THE MATHS

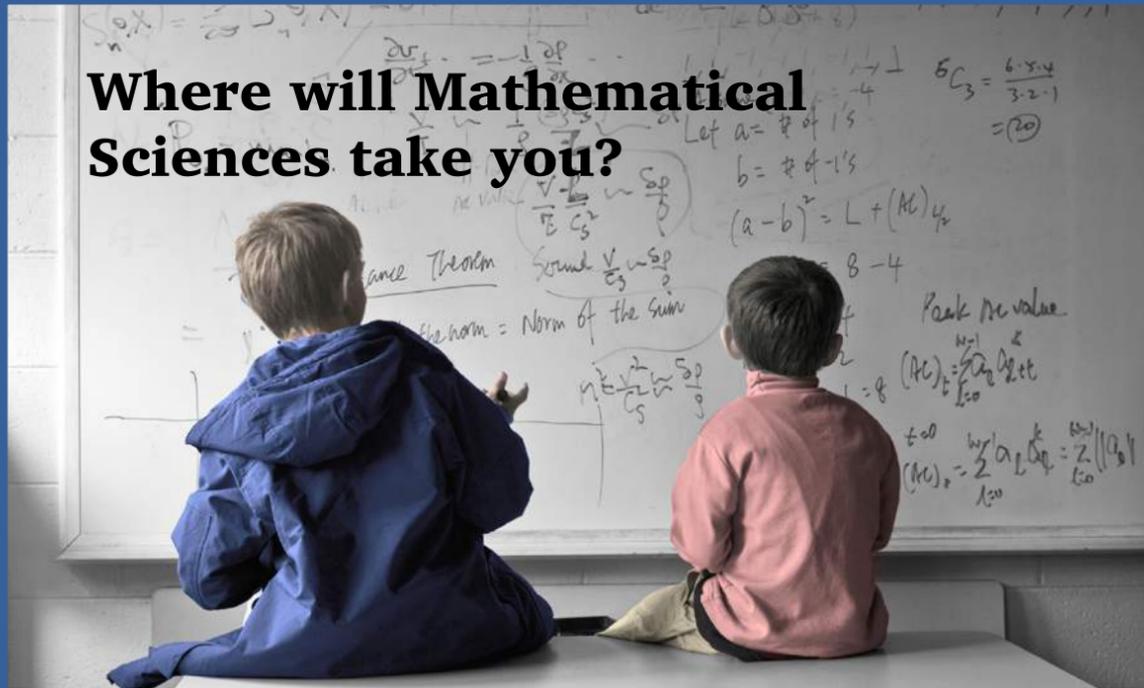
PROBABILITY
STATISTICS
CALCULUS
LINEAR ALGEBRA
MATHEMATICAL
MODELLING
OPTIMISATION
MACHINE LEARNING

THE JOBS

APP DEVELOPER
DATA ANALYST
GAME DEVELOPER
SOFTWARE ENGINEER
COMPUTER SCIENTIST
DATA SCIENTIST
ELECTRONIC ENGINEER
PROGRAMMER

THE EMPLOYERS

GOVERNMENT AGENCIES
DEFENCE COMPANIES
BANKS
LARGE RETAIL
COMPANIES
FINANCE



Where will Mathematical Sciences take you?

"Young people must come to see science and math degrees as key to opportunity. If we fail at this, we won't be able to compete in the global economy" – Bill Gates

Mathematical Skills Can Make All The Difference: you will develop general skills in problem solving, critical thinking, modelling, analysis, research, and creativity, which can be used wherever your career may take you.

CAREER OPPORTUNITIES

Actuary	Financial Analyst
Banking and Finance	Genetics
Biostatistician and Public Health	Market Research
Communications Specialist	Mathematical Modeller
Computer Analyst	Mathematical Physicist
Computer Programmer	Medical Research/Science
Cryptologist	Operations Research Analyst
Data Analyst	Science Journalism
Defence	Statistician
Film Industry	Teacher
Special Effects	University Lecturer

Enquiries

School of Mathematical Sciences
9 Rainforest Walk, Monash University, Victoria, 3800
Telephone: 03 9905 4465
Email: enquiries@maths.monash.edu.au

For more information on studying mathematics at Monash visit maths.monash.edu

Study Programs

The School of Mathematical Sciences offers undergraduate and postgraduate programs in:

- Applied mathematics
- Financial and insurance mathematics
- Mathematical statistics
- Pure mathematics

Undergraduate Studies

Students can study topics from a range of areas in mathematics, including:

- Algebra and number theory
- Geometry and partial differential equations
- Mathematical physics
- Statistical techniques and applications
- Probability
- Financial mathematics
- Stochastic processes
- Operations research
- Computational Mathematics

These can be combined with studies from other areas including engineering, commerce, IT, law and arts. Mathematics is commonly taken with other science areas of study.

Further Information

Monash University Undergraduate Handbook
www.monash.edu.au/pubs/handbooks



MONASH
University

DATA SCIENCE DEVELOPER

StepChange Consultants / Perth / Contract/Temp

We are seeking a dynamic Data Science Developer team member to join us working on a data science project in a company with an organisational wide culture of data-driven decision making. You will be capable of utilising data mining, predictive analytics and artificial intelligence (AI).

This includes being able to demonstrate leading edge **data science** solutions to support the business.

Job tasks and responsibilities

- Ability to build and deploy **predictive models** with **large data sets**
- Experience working with **large data sets**, experience working with distributed computing a plus (Hadoop, Hive, Apache Spark, etc.)
- Develop in-house distributed **Machine Learning** systems and utilise the existing open source packages

- Review and optimize the data (ETL), **analytics** and reporting (ad hoc and enterprise) platform.
- Applying artificial intelligence techniques to build data products

Skills and experience

- R, Python skills are an absolute must
- Azure/AWS stack commercial exposure will hold you in good stead
- A Masters and/or PhD in **Machine Learning, Maths, Statistics, Data Science** or a relevant field will be looked upon favourably
- The desire to be part of an emerging and exciting analytics team

If you believe you have the capability to help our clients execute end-to-end data science projects using proven methodologies and enable them to analyse trends, find patterns, predict next best action, use artificial intelligence for automating processes, making accurate predictions and better business decisions, then we want to hear from you!

#data science #predictive models
#data analytics #machine learning

Expand your career opportunities with a Mathematics and Statistics major

Whether you want to pursue a career in business and finance, solve some of the world's most pressing problems, or make the next big breakthrough in science or engineering, a mathematics and statistics major can help you achieve your goals

Our Mathematics and Statistics degree focuses on applied data analysis and mathematical modelling that give you exposure to real industry problems, so you have the skills you need in the workplace when you graduate.

Explore our mathematics and statistics courses at murdoch.edu.au/science

JUMP THE QUEUE WITH AUSTRALIA'S 1ST BACHELOR OF SCIENCE IN ANALYTICS

- > By 2018, the USA alone could face a shortage of around 1.5 million data analysts with the knowledge and skills to manage big data to help businesses make effective decisions. (2011 McKinsey report)
- > Study the UTS Bachelor of Science in Analytics and combine with another discipline to broaden your employment opportunities.
- > Add on our internship program and start building your own network while studying.

More details, visit www.uts.edu.au/future-students/find-a-course/courses/c10384

"If you excel at Mathematics, do an Analytics degree at UTS. You will gain real-world practical experiences, work on interesting problems and be rewarded with a well-paid job."

Ignatius McBride
UTS Graduate in Mathematics, Banking Analyst at Australian Prudential Regulator Authority

science.uts.edu.au/future

UTS is the #1 young University in Australia based on Times Higher Education 100 under 50 rankings and QS top 50 under 50, 2015.

UTS CRICOS PROVIDER CODE: 00099F
IMAGE: ASPECT STUDIOS / 20099

NO.1
UTS RANKED AUSTRALIA'S #1 YOUNG UNI



“ MATHS IS CRUCIAL TO EVERYTHING WE DO. FROM SAFETY AND RELIABILITY TO THE OVERALL ENGINEERING OF A PRODUCT. ”

MARITA CHENG AM

Founder Robogals & CEO – Robotics company Aubot

Relax, robots aren't going to take over the world. But they are helping humans every day in hospitals, schools, offices and museums around Australia. As a child, it didn't make sense to me that we had the internet and powerful technologies, but robots weren't part of helping humans in their everyday lives.

Aubot's first robot is a telepresence robot called Teleport which allows users to teleport to where they need to go, instantly. A student sick in hospital can go to school remotely, or an art lover can visit a museum on the other side of the world. It's a video phone on wheels remotely controlled by the caller, with motors to drive it and a height adjustable body supporting a tablet and speaker system.

The tablet displays the caller's face and has mechanisms to avoid getting stuck, and even to drive it back to a charging dock.

Maths is crucial to engineering the robot and also making our robots safe and for example not toppling someone over. It helps us develop manufacturing specs so the robot can withstand bumps and damage, and keeps the communications working and reliable.

I started Robogals at university, because there were only four other girls studying my engineering course with me. It's grown into an international organisation that has delivered robotics workshops to over 70,000 girls.

MARITA'S CAREER JOURNEY

BEng: Mechatronics / Computer Science > **Graduate Studies Program: NASA AMES Research Park** > **Founder: Robogals** > **Founder & CEO: Aubot**

SECURITY & DEFENCE

These days it is difficult to imagine a world without emails, online banking, social media and the convenience of click and collect. Our lives are increasingly lived and managed online.

We pay a price for convenience and efficiency though, with high volumes of personal data stored and mined. This information is valuable leaving us vulnerable to cybercrime, systemic failure and data corruption. In a high profile example, the Australian Government were victims of a successful sabotage of Australia's 2016 online census.

The Government is not alone, recent reporting showed over 60 per cent of Australian businesses experienced security breaches in 2016. This number is set to soar with the increasing scale and sophistication of cyber attacks.

From big and small business to defence, cyber security has become a billion dollar growth industry. This has seen graduates skilled in mathematics and statistics top recruitment wish lists as companies seek to keep ahead and build capability.

Your computer science, programming and mathematics and statistics skills may be the best weapon as we seek to secure the country from online and operational threats.



THE WORLD WORKS BETTER WITH MATHS

 QUT Maths



a university for the real world



CRIICOS No. 00213J

RESEARCH ENGINEER/ANALYST

elmTEK / Adelaide

About the business

elmTEK is a proven provider of integrated technology solutions ranging from concept demonstrators to field ready systems. Our experience in Defence Science & Technology and commitment to innovation provides the right balance to rapidly transition our client needs into fit for purpose solutions. Our core business spans Integrated ISREW, Simulation & Training, Test & Evaluation Technologies and [Data Acquisition & Analytics](#). Our business offers projects in the Adelaide, Melbourne and Perth locales.

About the roles (x2)

We are looking to establish an MS&A team to work closely with our Adelaide based client as part of an integrated research and analysis team. The team will be responsible for building an underwater MS&A capability in support of the Future Submarine Program, and ultimately support the provision of advice to the Program over a number of years.

As a Research Engineer (x1), you will have knowledge and experience in signal processing and ideally have had exposure to research and development.

As an Analyst (x1), you will have experience or an interest in developing models and using simulations to undertake studies and experiments. This role includes developing and supporting a configuration management process and would suit any engineering or related practitioners with demonstrated experience in this area.

Candidates shall ideally have strong academic performance and a keen interest in working as part of an integrated team.

Skills and experience

Candidates must have Australian citizenship and either hold or be willing to progress a Defence clearance. In applying for this position, candidates are requested to address the following criteria:

Essential Skills:

Bachelor degree in electrical/electronic engineering, or related fields;

Experience or interest in [Modelling, Simulation & Analysis](#) programs; and

Strong interpersonal communication and reporting writing skills.

Desirable Skills:

Research Engineer

Demonstrated experience with signal processing.

Preferably additional qualifications or study in [mathematics](#) and/or physics

Analyst

Demonstrated experience and/or knowledge of configuration management

[#data analytics](#) [#model development](#) [#modelling](#)
[#mathematics](#) [#programming skills](#)

OKAY
SO HERE'S WHAT YOU
NEED TO **KNOW!**

THE MATHS

PROBABILITY
STATISTICS
ALGEBRA
CALCULUS
MODELLING
OPTIMISATION
MACHINE LEARNING

THE JOBS

FORENSICS ANALYST
FRAUD ANALYST
CRIMINOLOGIST
NETWORK DESIGNER
CRYPTOGRAPHER
SECURITY ENGINEER
NETWORK ANALYST
PROGRAMMER

THE EMPLOYERS

BANKS
INSURANCE COMPANIES
GOVERNMENT AGENCIES
POLICE FORCES
DEFENCE
TECHNOLOGY COMPANIES

85% OF THE JOBS
THAT WILL EXIST IN
2030
HAVEN'T EVEN BEEN
INVENTED YET

Dell Technologies - Report 2017

The next era of human machine partnerships: Emerging technologies' impact on society & work in 2030.

DEFENCE PROGRAMMERS, ENGINEERS AND SCIENTISTS

Simbiant / Adelaide / Full Time

Simbiant is an Adelaide based technology company whose core business lies in the development of complex real world defence systems. Simbiant have brought together experts in Software, Hardware, Electronics, [Mathematics](#), Aeronautics, IT, Graphics, Physics, AI, Commercial and Military Systems, who work together to provide professional services and products to our clients.

Simbiant is currently seeking highly motivated Engineers and programmers to work in a collaborative environment to develop high tech military technologies. We have multiple roles and ideal candidates will have worked in defence with an NV1 security clearance, good programming skills, and ability to ramp up quickly. Our projects include electro-optic IR/UV sensors, RF and radar technologies, Drone Sensors and countermeasures, real-time autonomous systems and robotics, AI and [machine learning](#), Automated Flight Controllers, Computer Vision, and development of countermeasures and tactics in Electronic Warfare.

It's a great environment to do exciting and varied work. Most work will take place in the defence precincts north of Adelaide, and in our R&D facilities near Glenelg.

Projects

Be a member of a tight-knit team providing programming, engineering and scientific expertise. We have many roles in challenging projects, including:

- Electronic Warfare Naval Counter-Measure Development (NULKA)
- Radar Threat Modelling and Simulation (Chimera)
- Trials Support and Mathematical Modelling (Future Submarines)
- Electro/Optic Simulation and Modelling (MRH-90)
- RF Electronics Development
- Embedded Control Systems Development (B-600)

What we are looking for:

You don't need to have all of these skills, and graduates and juniors will be trained. But the more you have, the better. We will find the right fit for the right candidate.

- Current NV1 Security clearance or higher. NV2, PV
- Degree in Computer Science, Electrical, Mechatronic, Electronic, Computer, Physics, Mathematics, Software or Control Engineering (or significant relevant experience)
- Modelling and simulation skills using Matlab, Simulink and C/C++
- Programming skills using C++, Python, VHDL
- QT, Linux, GUI
- Control systems and [algorithm design](#)
- [Data](#) and signal processing for radar, video, inertial and other sensors
- Infra Red and UV electro optics experience
- AI and [machine learning](#)
- ArduPilot and Flight Controller Experience
- Unity 3D and VR development
- Good communication and inter-personal skills for customer and supplier liaison
- Able to use initiative, be self-motivated and be a good team player

Important:

Obtaining a defence security clearance is essential for the position. NV1 NV2 PV. A current or recent defence clearance would be highly regarded. Only Australian citizens can obtain a defence security clearance.

[#mathematics](#) [#machine learning](#) [#data](#) [#modelling](#)

APPLIED Australian Academy of Technology & Engineering

Our experts talk tech

Listen to the Academy's podcasts applied.org.au/podcasts

“ MATHS IS CRUCIAL TO ENGINEERING RADARS AND I USE MATHEMATICAL ALGORITHMS TO ENSURE THEY FUNCTION PROPERLY AND ACCURATELY. ”



NATHAN ANDERSON

Radar Engineer – Silentium Defence

Radars. You've heard about them. You've maybe even seen them in a TV show or movie. But do you really understand what they do? Or thought about the people who develop and run them?

Radars are detection systems that use radio waves to determine the range, angle or velocity of objects. They can be used to detect many things such as drones, satellites, planes, ships, cars and even the weather.

Radars are critical for infrastructure protection and securing vital services, especially today as we see more and more 'traffic' launched into space and our urban environments. You might not realise it, but radars are important to everyday life and need constant development and maintenance to keep pace with change and ensure they function properly. That's where I come in, as a Radar Engineer.

As a Radar Engineer, I make passive radars for the Australian Defence Force and civilian businesses. Maths is crucial to engineering radars and I use mathematical algorithms to ensure they function properly and accurately.

I created my own radar during my PhD at the University of Adelaide and I undertook a short-term internship at Silentium Defence through the APR.Intern Program. It was an invaluable experience to see the difference between my system and theirs and learn from a world class team. Since the project's completion, Silentium Defence has offered me a full-time position in a newly created role. Now I get to see the technology I've developed deployed in the real-world and used to help protect what matters.

NATHAN'S CAREER JOURNEY

>
BEng: Telecommunications > **PhD:** Electronic Engineering
 > Radar Engineer – Silentium Defences

BIOSTATISTICS & BIOINFORMATICS

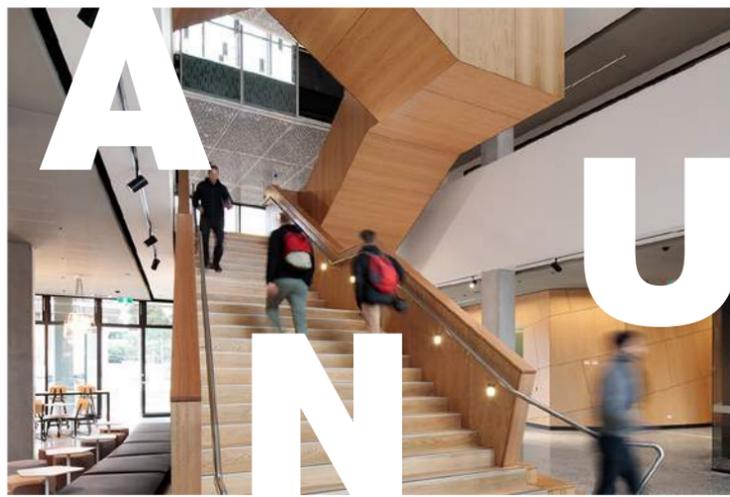


The human body is a complex and mysterious machine. Every cell of our body contains the blueprint for life, encoded within the DNA molecules of the genome. The challenge is to decode this detailed information to provide new insights into how we can best manage, diagnose and treat disease.

One of the ways we do this is by using mathematical and statistical tools. Known as bioinformatics, this research uses genetic code to understand our bodies and tackle global health challenges such as cancer, heart disease and infectious diseases like malaria and influenza.

Personalised medicine is the idea that your genetic code should determine the best medical treatment for you and it's one of the fastest growing areas in the medical field worldwide. Each of us metabolises and reacts to drugs differently impacting treatment effectiveness and safety. Modelling a patient's genetics, we can predict how they will respond to different types and doses of medications. Tailored treatment plans reduce the risk of overdose and ineffective medication use, as well increasing wellbeing through fewer side effects.

Maths and data science are essential tools to unlock the secrets of big data and interpret measurements and experiments. With rapidly advancing technology and the rise of precision healthcare, demand for graduates with these skills is soaring.



Follow your passion for maths in Australia's highest ranked university

Mathematics plays a vital role on the growth of science and technology, making it the fastest growing field in STEM disciplines.

Our innovative research and teaching facilities, with internationally-recognised academic staff and ground-breaking research in a variety of topics will enable students to master quantitative problem-solving, mathematical modelling and critical thinking.

Come and explore why we are the best place to study maths in Australia.

Find out more maths.anu.edu.au

“
Maths can be applied to so many pressing problems and opens so many doors. Applying my quantitative skillset to unravel real world problems has been very satisfying.
 ”

Yunfei Ouyang, BMathSci graduate

Why study mathematics at ANU?

- > Ranked #1 in Australia for Mathematics (2019 QS World University Rankings).
- > Access to tailored research courses as part of the degree.
- > Classes among the smallest of Australia's top ranked universities.
- > Wide choice of courses and research projects in pure and applied mathematics with some of the best mathematicians in Australia.
- > Ability to combine our Bachelor of Mathematical Sciences with another degree from the ANU Flexible Double Degree options.
- > Access to facilities in collaboration with the Research School of Computer Science and the Australian Signals Directorate.

CRICCS/00120C | MO_CPMST1485

DOMAIN BIOINFORMATICIAN

Baker Heart & Diabetes Institute / Melbourne / Full Time / \$85,000 – \$89,000 +

- Opportunity to be a part of Melbourne-based research centre
- Full-Time, 3-year contract, with potential for renewal
- Bronze member of the Science in Australia Gender Equity (SAGE) Program

About Baker

The Baker Heart and Diabetes Institute is an independent, internationally-renowned medical research facility, with a history spanning more than 92 years. The Institute's work extends from the laboratory to wide-scale community studies with a focus on diagnosis, prevention and treatment of diabetes and cardiovascular disease.

The Baker Institute is the nation's first multi-disciplinary organisation tackling the deadly trio of obesity, diabetes and cardiovascular disease through research, education and patient care.

About the Role

We are looking for a postdoctoral **Bioinformatician**. The successful candidate will be based at the Baker Institute in the Systems Genomics Lab (<https://baker.edu.au/research/laboratories/systems-genomics>) and supervised by A/Prof Michael Inouye.

The successful candidate's main roles will be (i) to provide bioinformatics and/or biostatistics expertise for experimental and study design, data analyses and interpretation at the Institute, and (ii) to perform high quality research in bioinformatics, genomics or computational biology.

Skills and Experience

The essential skills to succeed in this role are:

- A PhD in a quantitative discipline (such as **bioinformatics**, computational biology, computer science, **statistics** or epidemiology) and/or science discipline (such as biochemistry, molecular biology or genetics/genomics) with substantial quantitative component.
- Research experience in at least one of the following area: **statistical** genomics, computational biology or **bioinformatics**, with high competency in the **statistical** or computational analysis of **large datasets**.
- A high level of interpersonal skills, which enable the appointee to liaise effectively with a wide range of people at a variety of levels internal and external to the Institute.
- Demonstrated ability to use Unix-based systems, computing clusters, modern scripting/programming languages including R.
- Demonstrated ability to produce high quality results and to meet deadlines without compromising close attention to detail and accuracy.
- Proven capacity to work as a member of a team as well as autonomously without close supervision.
- Demonstrated ability to lead and contribute to high impact research publications.

#bioinformatics #biostatistics #data analysis #data #big data #statistical analysis

OKAY
 SO HERE'S WHAT YOU
 NEED TO **KNOW!**

THE MATHS

- PROBABILITY
- STATISTICS
- GRAPH THEORY
- LINEAR ALGEBRA
- MACHINE LEARNING

THE JOBS

- BIOSTATISTICIAN
- BIOINFORMATICIAN
- SCIENTIST
- DATA ANALYST
- RESEARCHER

THE EMPLOYERS

- MEDICAL RESEARCH INSTITUTES
- UNIVERSITIES
- HOSPITALS
- INSURANCE COMPANIES
- PHARMACEUTICAL COMPANIES
- HEALTH ORGANISATIONS

75%

FASTEST GROWING JOBS

REQUIRE

STEM SKILLS

Journal of STEM Education

Volume 12 – Issue 5 & 6, July-September 2011

Effects of integrative approaches among STEM subjects on students learning, Becker, K. & Park, K.

CANCER ANALYSIS AND STATISTICS MANAGER

Kelly Government Solutions / Sydney / 12 month contract

Kelly Services is seeking a Manager, Cancer [Analysis](#) and [Statistics](#) for one of our Government clients based in Sydney CBD to work on a 12 months contract.

The successful candidate will lead the development and implementation of complex analyses of data relating to cancer to support achievement of key strategic objectives relating to cancer control in NSW.)

Key accountabilities:

- Plan and oversee the completion of [statistical and epidemiological analyses](#) on cancer data
- Ensure engagement and ongoing involvement of stakeholders into the [design, analysis and interpretation](#) of cancer data
- Oversee and drive governance and quality assurance activities to ensure compliance with relevant procedures
- Research contemporary trends and developments in relevant methodology, software and areas of continual improvement
- Collaborate with staff regarding analyses and evaluation of data from diverse sources, development of methods and preparation of papers and reports for scientific publication or presentation
- Manage and oversee external collaborations with partners in the state, national and international research community
- Plan and deliver [complex statistical and epidemiological analysis and reporting](#) of cancer data

Key requirements:

- Demonstrated local experience in [data and business analysis](#) in the Cancer/Oncology sector
- Knowledge and understanding of [statistical methodology](#) and its application, and [statistical software](#) packages
- Tertiary qualifications in [statistics](#) or a related discipline; and equivalent professional experience
- Ability to manage the team's performance and completion of work assignments within agreed timelines and budget
- Excellent communication skills both verbal and written

[#data](#) [#statistics](#) [#medical](#) [#research](#) [#health](#)
[#statistical analysis](#) [#data analysis](#)

BIostatistician - R&D

OnQ Recruitment / Sydney / Full Time / \$100k-\$140k

- Work for a company at the forefront of early cancer detection
- Key role supporting R&D activities
- Join a company at the forefront of innovation

Our client, a leading international biotechnology company that provides innovative cancer diagnostics solutions is currently looking to recruit a [Biostatistician](#) to support all aspects of their R&D activities.

As the sole Biostatistician of the company, your position will be instrumental to support our client's product pipeline. Reporting to the Vice President of Science and Innovation, you will work closely with the R&D and clinical teams and be involved in multiple concurrent and complex projects. Your role will be key to the effective analysis and interpretation of large-scale clinical data generated from medical research and clinical trials.

In order to be considered for this role, you will have the following skills and qualifications:

- An MSc or PhD in [biostatistics](#)
- Sound understanding of molecular biology
- Prior experience working with programming language and [statistical packages](#) such as R, SAS or Stata.
- Excellent communication skills (verbal and written)
- The ability to work in a flexible environment with competing deadlines.

This role is a great opportunity to further develop your molecular biology skills and knowledge and join a company at the forefront of early cancer detection.

[#biostatistics](#) [#statistics](#) [#data](#) [#statistical software](#)



Explore economics.

To discover more about the benefits of studying economics, visit rba.gov.au/education



LYNDAL HENDEN

Bioinformatician – Macquarie University

“ I HELP PEOPLE BY APPLYING MATHEMATICAL KNOWLEDGE TO REAL-LIFE MEDICAL DATA . ”

When I was about 15 I wanted to be a weather reporter. To do this, I was told I would need to become a meteorologist, which meant studying maths at university. But as I progressed through university I discovered a world of new things that interested me, things that I didn't even know existed at high school. One of those areas was medical data. Weather reporting quickly gave way and I decided to study a PhD at a medical research institute.

My research focused on finding patterns of natural selection in malaria. I got DNA data from people who had been infected with malaria, and analysed it using a maths algorithm that I developed. I've analysed malaria data from

across the world and found patterns of natural selection that are associated with drug resistance.

Now I'm a postdoctoral researcher at Macquarie University, working on Motor Neuron Disease. I really hope that one day my work will play a role in controlling or even eliminating these, and other diseases.

One of the hardest things I've done is complete my undergraduate degree. I almost dropped out in first year because I didn't think I was smart enough. Initially, I struggled with the work and really didn't think I could do it. If it weren't for a lot of encouragement and 'sticking with it' I wouldn't be doing what I'm doing today.

LYNDAL'S CAREER JOURNEY

BSc: Mathematics & Statistics > BSc Hons: Statistics > PhD: Medical Research (Malaria) > Postdoctoral Researcher - MND Research



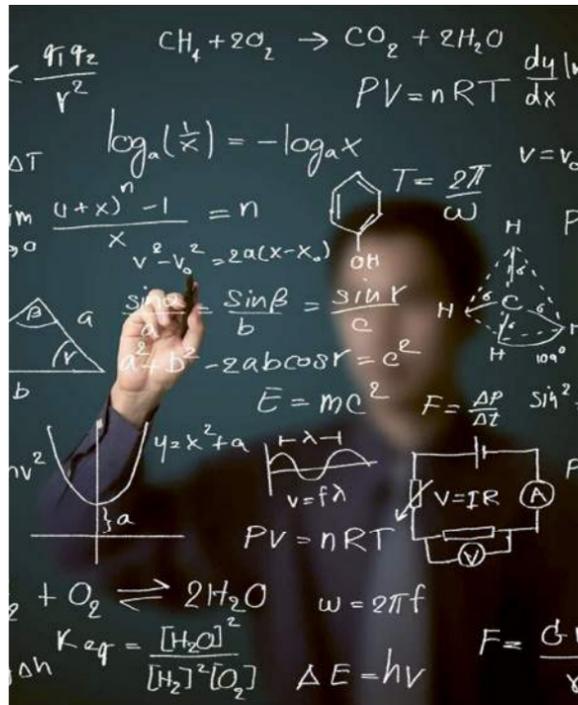
TRANSPORT & LOGISTICS

Living in a global community means moving billions of people, goods and services throughout the world. Maths, technology and data analysis is transforming the journey from A to B.

From the clothes you wear to the food you eat, it's likely that things have come from many different places across the world. Maths, data and optimisation are critical to managing this complex string of processes, schedules and networks.

Closer to home, urban living means extra strain on major cities and transport infrastructure such as roads and rail networks. Just moving people to and from school and work every day has become a delicate numbers game as we use mathematics to manage sprawling transport networks.

Companies such as Uber and Amazon know that changing technology and automation open opportunities to transform how they provide services and products. For example, we are already seeing drones replace more traditional delivery services. As they seek to optimise their business model, a workforce skilled in maths and data analysis will be essential to drive many of these changes.



Choose a future that adds up.

Are you a critical thinker who enjoys challenges such as modelling and solving real-world problems or calculating risks? Do you want to use your analytical and computational skills to help change the future of global organisations? Then turn your passion into a career with a science degree majoring in:

- Actuarial Science
- Data Science
- Financial Mathematics
- Industrial and Applied Mathematics

Our majors have been created in response to industry demand, preparing you for the jobs of the future.

scieng.curtin.edu.au/maths

Make tomorrow better.



Curtin University

CIRCOS Provider Code 003013.

31895E



ANZIAM (Australia and New Zealand Industrial and Applied Mathematics) is a division of The Australian Mathematical Society. Our members are interested in applied mathematical research, mathematical applications in industry and business, and mathematics education at tertiary level.

Activities: conferences, awards, student support, publishing

www.anziam.org.au

INFORMATION ANALYST

Hunter Valley Coal Chain Coordinator Limited / Newcastle / Contract/Temp

- Identify trends and improvement opportunities based on [analysis](#) of the Hunter Valley Coal Chain (diagnostic and [predictive](#)), HVCCC's systems and processes
- Propose innovative solutions to improve [data analysis](#) and assist with the implementation of such improvements
- Drive a customer centric approach to the next generation supply chain

The Hunter Valley Coal Chain Coordinator (HVCCC) is a member funded, independent, one-of-its-kind [logistics](#) organisation that coordinates the planning, scheduling and operational execution of the Hunter Valley Coal Chain. Through its unique end-to-end system view, HVCCC provides members with insights, advice and analysis to improve efficiency and maximise their value from the shared infrastructure of the Hunter Valley Coal Chain.

The role of HVCCC is to "Lead Collaboration and Innovate for the Best Imaginable Supply Chain". Having endorsed the 2018-2027 Strategic Plan, the business is going through significant change to enable the provision of the next generation supply chain for customers. As a result, we are making substantial investment in areas such as our planning, [analytics](#) and systems. We are committed to attracting leaders and innovators to support this period of growth.

The role of [Information Analyst](#), reporting to the Customer Insights Lead, will support the successful delivery of reporting and [data analytics](#) services required to support our customers. The Information Analyst will drive the Reporting and [Data Analysis](#) function to identify trends and improvement opportunities for HVCCC and champion the integration of improvements to HVCCC's core analytical tools (MicroStrategy, MS Excel) to meet customer requirements. The Information Analyst will also be capable of delivering valuable insights through the preparation of both high level and detailed reports that address strategic and operational challenges.

Selection Criteria:

- Tertiary qualification in statistics, mathematics, business or an equivalent degree or equivalent experience.
- A minimum of 3 years' experience in a similar role, working in complex and challenging environment.
- High level of computer literacy; sound working knowledge of relevant software / business intelligence programs. (e.g. MS Excel, SSRS, MicroStrategy)
- Experience working in a customer-centric organisation is preferable.
- High level [analytical and problem-solving skills](#).
- High level interpersonal, verbal and written communication skills.
- Demonstrated experience with Business Intelligence and [analytics](#).
- Sound knowledge of [structured data](#), such as entities, classes, hierarchies, relationships and metadata.
- Sound knowledge of database management system (DBMS) physical implementation, including tables, joins and SQL querying.
- Alignment to HVCCC core cultural values which are fundamental to the way we approach each other and our customers.

The successful applicant will be offered a competitive remuneration package, ongoing professional development and be instrumental in adding value to a billion-dollar industry that is unique on the world stage. www.hvccc.com.au

[#analytical skills](#) [#analytics](#) [#data](#) [#data analytics](#) [#statistics](#) [#mathematics](#) [#problem solving](#)

OKAY
SO HERE'S WHAT YOU
NEED TO **KNOW!**

THE MATHS

PROBABILITY
STATISTICS
CALCULUS
NETWORK THEORY
OPTIMISATION
MACHINE LEARNING

THE JOBS

QUANTITATIVE ANALYST
SUPPLY CHAIN ANALYST
RISK ANALYST
PROCESS ENGINEER
TRAFFIC ENGINEER
LOGISTICS MANAGER
OPTIMISATION SPECIALIST

THE EMPLOYERS

GOVERNMENT
AIRLINES
PUBLIC TRANSPORT
COURIERS
FREIGHT & SHIPPING COMPANIES
MANUFACTURING INDUSTRY

NETWORK CAPACITY MODELLER

Forsythes Recruitment / Newcastle

About the Opportunity:

Australian Rail Track Corporation manage and maintain 8500km of rail across five Australian states. They provide the safe and seamless transit of hundreds of freight and passenger trains across their network, daily. As the champions of rail, ARTC place their customer's needs as their first priority- investing billions of dollars to create a cost efficient, reliable, safe and responsible service. Their commitment to community is reflected in their organisational culture and their united and loyal workforce.

About the Role:

ARTC are seeking to employ a candidate who will undertake Network Capacity Modelling for above and below rail planning, scheduling, and operations. This role will deliver data driven solutions that will support and improve the scheduling and planning of maintenance events within the ARTC network.

The primary purpose of this role is to be forward-thinking and ensure that requests for track access do not impact ARTC's commercial objectives. The Network Capacity Modeller will support improvements to operational performance and commercial outcomes through capacity assessments of both short and long term maintenance planning and scheduling.

Primary Responsibilities include:

- Assist in the development of models for increased track access for the Asset teams without impacting ability to deliver;
 - Apply innovative [data modelling & analysis](#) techniques to support efficient possession planning, improvement programs or cost saving initiatives;
 - Present ideas, results & recommendations to internal stakeholders;
 - Utilise commercially focused key performance indicators and processes of above and below rail to generate risk-based network capacity modelling;
- and
- Design, develop, enhance and create awareness of network capacity modelling workflows, action plans and procedures documenting the activities undertaken and lessons learned.

About You:

To be successful in this role you will have a strong planning background and previous exposure to business modelling. You will have strong proficiency in utilising Excel and take a strategic and [analytical](#) approach to planning and scheduling. Primarily, you will have an ability to convert data into scenario models that reliably predicts outcomes, increases productivity, and reduces capital expenditure.

Essential Skills

- Experience in the mining manufacturing or logistics sectors;
- Sound knowledge of supply chain management;
- Proficient in the use of Microsoft Office suite;
- Tertiary qualified in business, engineering, mathematics or logistics, OR extensive relevant experience from large, complex businesses;
- Strong communication and stakeholder management skills; and
- Highly developed [analytical and numeracy skills](#).

Desirable Skills:

- Experience in the rail industry; and
- Experience with simulation software.

Work-Life Balance

This position gives you the gift of work-life balance. ARTC are invested in providing flexible work arrangements for their employees. If you require an occasional day to work from home, or you need to leave work early to pick the kids up from school-then this role offers the flexibility to do so.

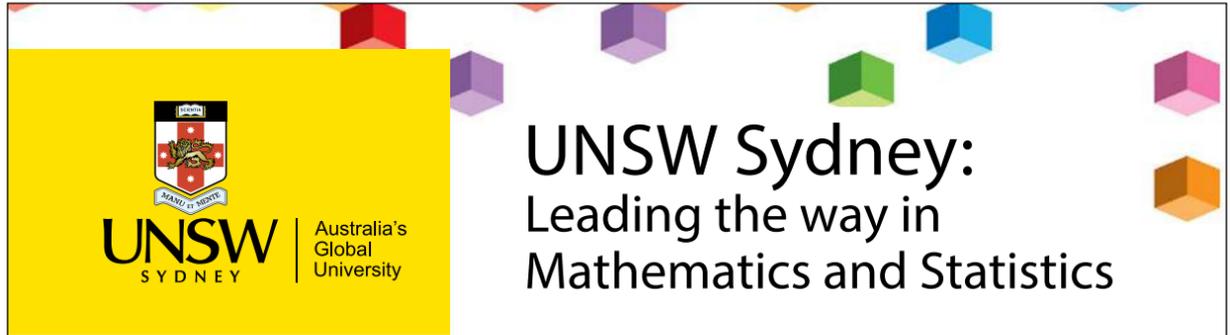
ARTC embraces a diverse workforce to ensure a supportive, flexible and fair workplace in which differences between employees are respected and viewed as organisational assets. We recognise that a talented and diverse workforce is fundamental to building a commercially strong and customer-focused organisation that will give rail a competitive advantage. We foster and support continued professional development for all of our team by offering opportunities to build management and leadership skill capability.

[#logistics](#) [#model development](#) [#modelling](#)
[#mathematics](#) [#analytical skills](#)

“ **BUSINESSES COMPETING IN A GLOBAL ECONOMY DRIVEN BY DATA, DIGITAL TECHNOLOGIES & INNOVATION WILL NEED MORE EMPLOYEES TRAINED IN STEM.** ”

PRICEWATERHOUSECOOPERS

A Smart Move - Future-proofing Australia's workforce by growing skills in STEM
(Science, Technology, Engineering & Maths) April 2015



As a recognised leader in mathematics and statistics in Australia, we offer the widest spectrum of courses.

Our **Advanced Mathematics** degree is a premier program for talented maths students. Combining advanced coursework with an Honours-level research project, graduates will become capable of developing new maths, to add to core mathematical knowledge, or to solve important real world problems. It can also be combined with other disciplines – some of the most popular choices include Engineering, Actuarial Studies, and Commerce.

The new **Bachelor of Data Science and Decisions** is a unique multidisciplinary program focused on mathematical methods, statistics, computing, business decisions, and communication. Taught across three different Schools at UNSW - Mathematics and Statistics; Computer Science and Engineering; and Economics - this program will train graduates to meet the growing demand for Data Scientists and Analysts nationally and internationally.

We offer a wide **range of scholarships**, such as Co-op Scholarships funded by industry partners, including Commonwealth Bank, the Reserve Bank of Australia, Macquarie Group, Solar Analytics, and PwC.

No.1*
UNSW is a national leader in maths & stats

Below: Students from the Bachelor of Data Science and Decisions



ORICOS Provider 000980

“ THE TANK WAS DESIGNED USING A HIGHLY ADVANCED MATHEMATICAL TOOL KNOWN AS FINITE ELEMENT ANALYSIS TO PREDICT FORCES DURING OPERATION AND OPTIMISE FOR THE LOWEST TARE MASS. ”



THINU HERATH

Senior Engineer – Omni Tanker

Engineering has changed the world. We're surrounded by the work of engineers every single day. Ever since I can remember, I've always been fascinated by making things and solving problems. I decided to study engineering, so I could develop my problem-solving skills and use these skills to improve the way we live.

and optimise for the lowest tare mass. The resulting tank was over 40% lighter than the industry standard for a corrosive chemical transportation tank. A real highlight for me was travelling to Germany, where the prototype I made passed fire testing as part of the standards approval process. These tanks are now sold in Europe and the USA.

During my PhD I undertook an internship at Omni Tanker, a company that manufactures specialised carbon fibre road tanks and tank containers to transport highly corrosive and high-purity oxidising chemicals. I worked with the company to design and develop the structural design of a 4000-litre carbon fibre tank and its fire protection system. The tank was designed using a highly advanced mathematical tool known as Finite Element Analysis to predict forces during operation

I love that I was able to use my specialist engineering skills to deliver this project. Now I am valued full time member of Omni Tanker's engineering team. I wouldn't have been able to do what I did without my knowledge in maths and science. Maths is the language of science and mechanical engineering and plays a huge role in researching, designing, developing, manufacturing and testing engines, machines and other mechanical devices.

THINU'S CAREER JOURNEY

→ **BSc:** Computer and Mathematical Sciences > **BEng:** Mechanical and Aerospace Engineering > **PhD:** Composite Design and Optimisation > Senior Engineer at Omni Tanker

EDUCATION

Remember that teacher who inspired and encouraged you to be your very best? You could do that for a new generation of Australians.

Education offers a real opportunity to make a difference to people's lives. Who knows, one of your students may be the mathematical leader, scientist or engineer who changes the world.

You don't have to work in the classroom either. As well as teaching in primary or secondary schools, teachers work in universities and provide the expertise needed for curriculum development, education management and even government policy. Education offers a secure and flexible career that you can take all around the world.

Online learning is an emerging market and now allows remote students the same access to information as students in metropolitan locations. As more and more courses move into the digital space it may be possible to teach students all over the globe, from your home here in Australia.

With out-of-field maths teaching a growing problem in Australia, your skills can make a world of difference in education.





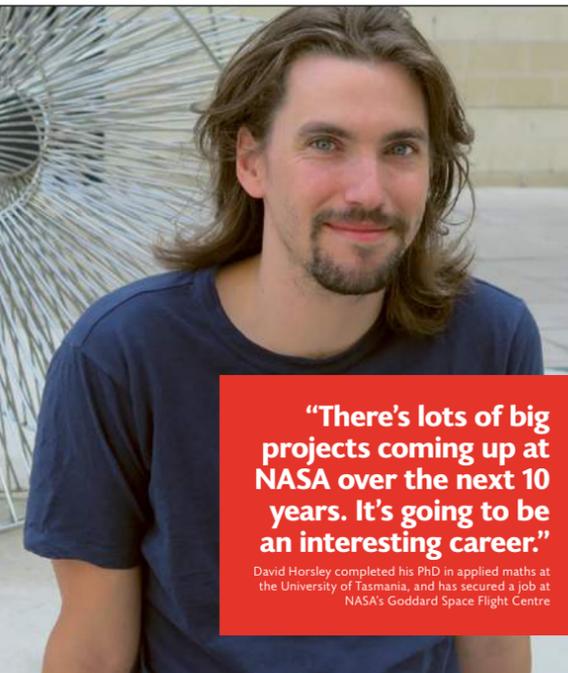
Where will a career in mathematics take you?

You could be revolutionising healthcare, exploring the farthest reaches of space, or connecting the world's communications. Almost every industry on Earth (and some beyond!) need skilled mathematics graduates like David, who has taken a job at NASA after studying mathematics at the University of Tasmania.

We have study options from pathway to postgraduate, covering pure and applied mathematics, statistics, and operations research.

Mathematics can take you anywhere.

utas.edu.au



“There’s lots of big projects coming up at NASA over the next 10 years. It’s going to be an interesting career.”

David Horsley completed his PhD in applied maths at the University of Tasmania, and has secured a job at NASA’s Goddard Space Flight Centre

CRICOS Provider Code 005866/0000592081

A world of career opportunities across a vast range of industries begins with mathematics.

Mathematics is critical to a huge range of industries including science, information technology, computing, finance, marketing, business, medicine, energy, government, security and education. Graduates with strong mathematical skills have increased employment opportunities across a diverse range of industry sectors.

As a graduate with specialist skills in mathematics, you’ll demonstrate strong quantitative skills, logical thinking, highly-developed numerical confidence, advanced levels of analytical and problem solving skills and could find graduate employment in the following roles:

- data scientist
- scientific programmer
- decision analyst
- teacher
- security specialist
- statistician

Learn from Deakin’s expert mathematics staff in a number of areas including statistics, data analysis, data science, logistics, decision support, modelling and cryptography.

deakin.edu.au/study-maths

Deakin University CRICOS Provider Code: 00113B




MATHEMATICS TEACHER REQUIRED

Prospero Teaching / Sydney, London / Permanent

Prospero Teaching have recently been appointed as an ‘Official Department for Education’ (DfE) supplier for the provision of International Teacher Recruitment in the UK. We are currently looking for an Outstanding [Maths Teacher](#) to join a fantastic school in London on a permanent basis.

The school prides itself as an inspirational place where the achievement of pupils is paramount. Each individual is encouraged to celebrate their talents and success in an environment where everybody matters. The aim is to ensure that every student is supported through their journey, motivated and appropriately challenged to achieve their full potential.

The ideal candidate will share the school's vision to improve the life changes of the young people in the communities they serve and the passion to really want to make a difference.

The college is looking to recruit an overseas trained Maths Teacher from New Zealand or Australia, the ideal candidate will have completed their full registration in either Australia or New Zealand and will be qualified to teach Year 9 and above. The school is interested in hearing from experienced and recently qualified Maths Teachers and will assist in supporting the right candidate with a UK work Visa.

The successful candidate will have:

- A relevant teaching qualification from Australia or New Zealand such as a Bachelor’s, Masters or Post Graduate Diploma
- Full teachers registration in either New Zealand or Australia
- High standards and expectations
- Highly developed interpersonal skills
- A commitment to team work and lead a team of teachers
- A positive outlook

- Excellent subject knowledge and be a [passionate teacher of Maths](#)
- Be able to plan exciting, engaging schemes of work
- Be aware of the importance of the organisation of different teaching strategies which underpin successful learning situations
- Be willing to support the extra-curricular opportunities that exist around Maths
- The drive to succeed

The successful candidate will be eligible for/supported with:

- £1000 relocation package
- Full residential acclimatisation course,
- In-school mentoring and relocation advice pre and post arrival to England and throughout the teaching post.
- Other support services and advice include; visas and work permits, professional in-school mentoring and support,
- Relocation advice, and best practice subject specific, teaching courses covering approaches to the new British curriculum (e.g. mastery / [problem solving](#))

[#mathematics teacher](#) [#mathematics education](#)
[#secondary mathematics](#) [#secondary school](#)
[#secondary teacher](#)

OKAY

SO HERE'S WHAT YOU NEED TO KNOW!

THE MATHS

- ARITHMETIC
- ALGEBRA
- CALCULUS
- PROBABILITY
- STATISTICS
- GEOMETRY
- TRIGONOMETRY

THE JOBS

- TEACHER
- EDUCATION CONSULTANT
- LECTURER
- PRINCIPAL
- CURRICULUM LEADER

THE EMPLOYERS

- SCHOOLS
- UNIVERSITIES
- TAFE
- DEPARTMENT OF EDUCATION
- MATHS ASSOCIATIONS
- PUBLISHING COMPANIES
- EDUCATIONAL ORGANISATIONS



Study the mathematics of decision making and...



Shorten wait lists at your local hospital

Improve traffic flow on your morning commute

Help industries stay competitive while reducing their carbon footprint

Develop crew rosters for an international airline

Discover industrial optimisation and operations research at the University of Melbourne.

Make your first decision: ms.unimelb.edu.au

CRICOS Provider code: 00116K

“ MATHEMATICS IS THE DOORWAY TO A MULTITUDE OF EXCITING PATHWAYS. IT IS THE SWISS ARMY KNIFE OF SKILLS PROVIDING THE AGILITY AND FLEXIBILITY TO ADAPT TO NEW AND EMERGING OPPORTUNITIES. ”

PROFESSOR TIM BROWN

DIRECTOR - Australian Mathematical Sciences Institute

PROFESSIONAL LEARNING CONSULTANT - SECONDARY MATHEMATICS

Mathematical Association of NSW / Sydney / Full Time

About the business and the role

The Mathematical Association of NSW Inc. (MANSW) is a not for profit professional teachers' association which has been operating for 100 years and currently has over 1,000 members. We operate from an office in Lidcombe and have a small, dedicated team of professional and administrative staff. The aim of MANSW is to promote quality [mathematics education](#) for all in NSW.

Job tasks and responsibilities

We are looking for an experienced, reliable and enthusiastic person to join an expanding professional service team, to develop and deliver mathematics professional learning activities at secondary school level.

The responsibilities include:

- Managing and presenting events in both metropolitan and regional NSW.
- Providing consultancy to schools.
- Maintaining the highest quality of professional learning, student service and consultancy events.
- Developing and managing MANSW projects with a focus on [secondary school mathematics education](#).

Skills and experience

The Professional Learning Consultant Secondary will have the following skills and experience:

- Expertise in all aspects of teaching [secondary mathematics](#).
- Highly developed communication, presentation and ICT skills.
- Ability to work in a team environment and work flexible hours.
- Experience in budget planning and project management.

Job benefits and perks

The role attracts a salary package commensurate with experience and qualifications and reports directly to the Executive Officer.

[#mathematics teacher](#) [#mathematics education](#) [#secondary mathematics](#)

[#secondary school](#) [#secondary teacher](#)

COMMISSIONING EDITOR MATHEMATICS & SCIENCE

Oxford University Press / Melbourne / Full Time

Leading the way in publishing, research and design, Oxford University Press is committed to delivering high-quality learning materials and service to our customers. As a department of the University of Oxford, we are proud to be furthering our objective of excellence in research, scholarship and education in Australia.

We are currently welcoming applications for a Commissioning Editor – [Mathematics](#) and Science to join our award-winning Secondary School Publishing team. This full-time, ongoing position provides a unique opportunity for a highly motivated individual to join a dynamic team and work for one of the world's most respected educational brands.

Reporting to the Secondary Publishing and Editorial Manager, the successful candidate will develop a range of market leading Mathematics and Science resources for Secondary Schools around Australia.

These resources will drive customer retention and acquisition by delivering positive learning outcomes for teachers and students.

As the successful candidate, you will:

- hold an undergraduate degree or postgraduate qualification in [mathematics](#) or science (or related discipline)
- have a demonstrated ability to manage complex projects – delivering high-quality results on time and on budget
- possess a sound knowledge of current trends in education, as well as a thorough understanding of the Secondary school market in Australia
- ideally have some experience in the educational publishing industry
- have excellent attention to detail and outstanding verbal and written communication skills

The ability to demonstrate evidence of these skills and attributes is essential.

[#mathematics](#) [#mathematics education](#)
[#secondary mathematics](#)



JANINE STEWART

Senior Mathematics Teacher & Year 12 Patron - St Columba Anglican School

“ TEACHING GIVES YOU A SENSE OF PRIDE THAT'S HARD TO EXPLAIN. IT IS THOSE MOMENTS WHEN A STUDENT WHO HAS BEEN GRAPPLING WITH A PROBLEM OR CONCEPT FINALLY MAKES THE CONNECTIONS THAT MAKE IT ALL WORTHWHILE. ”

At the end of Year 12, I was awarded a bonded teacher education scholarship by the NSW Department of Education. This scholarship paid a stipend for my tertiary education and guaranteed a three-year teaching appointment in the NSW public school system. As a regional student, I accepted essentially to help pay the bills. After my initial training, I continued postgraduate studies in mathematics while I was teaching full-time.

At the time, I thought that I would eventually move into the tertiary sector but I just loved teaching. The connections you make with students, parents and colleagues is, in my opinion, something that can't be replicated elsewhere.

Teaching has also opened up new worlds through travel. I worked in New York for over a decade and have met and worked with many fantastic people, some of whom remain my closest friends.

Teaching gives you a sense of pride that's hard to explain. It is those moments when a student who has been grappling with a problem or concept finally makes the connections that make it all worthwhile. When you witness their sense of achievement and pride.

JANINE'S CAREER JOURNEY

BEd: Education > MA: Education
> PhD: Mathematics > Senior Mathematics Teacher

Sport is a numbers game. From optimising performance to game strategy, doing the maths to get that big win is always front and centre.

With TV broadcasting deals and sponsorships at play, sport is big business and the demand on players and coaches has never been greater. Finding the winning edge with data and strategic game play is essential. It's estimated that the sports analytics market is expected to reach almost \$4 billion by 2022 and it shows no signs of slowing over the next decade.

Watch a football game and the statistics will come thick and fast. Goals scored, kicks, patterns of play and even betting odds. Behind the scenes a team of analysts is mining this information for a golden ticket to triumph. Helping the players stay ahead with the next best move.

Wearable sports technology grabbed headlines in 2010 when FINA decided to ban high tech swimsuits. Since then wearables in the form of clothing, technology to analyse body performance data and even high-tech footwear have been a hot topic and a growing industry. Maths and stats are used at every step from Research and Development to performance analysis and even marketing.

The sporting industry will continue to grow and mathematics and statistics graduates will be at the heart of every sports team, across every code, around the world.



SPORT & RECREATION

CUSTOMER ANALYTICS AND REPORTING

Surf Life Saving Foundation / Sydney / Full Time

- Support our Donor and Lottery teams fundraising efforts
- Full time Monday to Friday position
- Based in Bowen Hills close to public transport

The Surf Life Saving Foundation (SLSF) is the national fundraising body for Surf Life Saving in Australia. The Foundation manages a range of activities that raise much-needed funds to make our beaches a safer place for the millions of visitors our beaches get each year.

Based in Bowen Hills, you will work as part of a small but passionate team of people, all working to make a difference within the communities in which we operate, and supporting the front line volunteers that make our beaches safer for everyone. While we do work hard to achieve our goals, we know that it is equally important to enjoy our work and we have a great workplace to offer.

Our Values are:

- We inspire confidence by our actions
- We are driven to achieve results
- We invest in our people
- We are stronger together

We are looking for a person who ideally has 1 – 3 years' experience in a similar insight driven [data analytics](#) area with a focus on marketing [analytics](#), [statistical modelling](#) preferably in financial services or related education and project work. Our workplace is lively, fun and fast paced, so it will suit someone that enjoys working with and around people.

You will work on multiple data related projects at any given point in time and be a detail oriented operator with a passion for marketing and analysing a business and its customer base to get the most out of future fundraising activities. The successful candidate will have strong experience with SQL, advanced Excel skills and a tertiary qualification in a relevant Mathematics, Engineering, Marketing, Commerce/Business, Actuarial Studies, or Statistics discipline. Proficiency in using "R" would be advantageous.

Responsibilities of this role include:

- Reporting to the Customer Insights Manager (CIM) and with a primary focus of Donor and Lottery functions and associated activities, this role will support SLSF Revenue Managers and the SLSF Executive by providing:
- Regular and bespoke database selections for direct marketing and other supporter communications;
- Producing and developing regular and one-off reports on fundraising & commercial performance and effectiveness;

- Design and deliver analytical projects to inform fundraising & organisation opportunities to use reporting and analysis to drive improvement in foundation performance
- Maintain the integrity and security of SLS data and information.
- Assist with the implementation and coordination of campaign plans, segmentation and development
- Deliver campaign data accurately and on time in accordance with data briefs
- Apply all customer privacy and opt out rules in accordance with government requirements at all times and investigate customer complaints in regards to use of [data](#)
- Provide pre and post campaign [analytics](#) and reporting based on data accessed from CRM
- In response to briefs provided, produce timely, effective and accurate reports in relation to [data analysis](#) / identified trends as established with CIM and other SLSF Revenue Managers.
- Provide effective and timely assistance to CIM and SLSF Revenue Managers through the proactive identification and presentation of data trends, [data analysis](#), data opportunities, organisation wide capabilities and further analysis and reporting opportunities using available IT tools and knowledge of industry best practices.
- Provide daily reporting and analysis on face-to-face recruitment tracking.
- Effective use of Geo-demographic (i.e. Mosaic) profiling tools to assist CIM and SLSF Revenue Managers.
- Monitor and report on all external data transfers as well as undertake regular and effective data health checks when required.
- Provide assistance to CIM by participating in the development of effective data selection and segmentation strategies and processes designed to improve response and return rates from SLSF supporters.
- Use customer data to build next best action and response [predictive models](#) and enhance customer segmentation
- Build interactive dashboards for SLSF Revenue Managers
- Effectively assist the CIM in the development and maintenance of current processes and documentation outlining methodologies and protocols in relation to all aspects of the use, security and reporting of SLSF data.
- Utilise a developed working understanding of SLS and SLSF business and activities (i.e. Marketing, Operations, and Sales Channels) to assist SLS Fundraising & commercial objectives.

This is a fantastic opportunity to contribute to raising funds for a vital cause, and one of Australia's most iconic organisations.

[#data analysis](#) [#data analytics](#) [#data science](#)
[#predictive modelling](#) [#statistical modelling](#) [#statistics](#)

DATA SCIENTIST - PREDICTIVE ANALYTICS FOR SPORTS

Ashdown People / Sydney / Full Time

Are you interested in [Predictive Analytics](#) for Sport? In this role you will act as a [Data Scientist](#) within the Group [Modelling](#) Team.

Skills & Experience required

You must possess a passion for data and sports with an in depth level understanding of statistics and the application of statistical techniques to data analysis, specifically in the field of predictive model development.

- Minimum 5 years' commercial experience
- Exceptional academic record
- University studies in a [quantitative](#) field such as [mathematics](#) / [statistics](#) (or engineering) Bsc (hons), MSc+
- PHD & Research Background
- Artificial Intelligence
- [Predictive Analysis](#)
- [Machine Learning](#)
- Open Source–Python, Spark
- Experience using [quantitative software](#) packages (R, Python, Matlab, Mathematica)
- Exposure to [big data](#) processing frameworks (Apache Flink, Spark, Beam) is an advantage
- Exposure to object-orientated programming or a scripting language is an advantage
- Knowledge of SQL / understanding of relational database concepts is an advantage
- Proficient Excel / Tableau skills, with ability to analyse and present summary level data effectively
- Strong [problem solving skills](#), ability to work in a team with an eye for detail
- Strong communication skills with fluency in English and excellent writing skills
- A passion for Sports

[#data analysis](#) [#data analytics](#) [#data science](#) [#statistics](#)
[#predictive analytics](#) [#modelling](#) [#machine learning](#)
[#predictive model development](#) [#problem solving skills](#)

OKAY
 SO HERE'S WHAT YOU
 NEED TO **KNOW!**

THE MATHS

PROBABILITY
 STATISTICS
 ALGEBRA
 MATHEMATICAL
 MODELLING
 OPTIMISATION

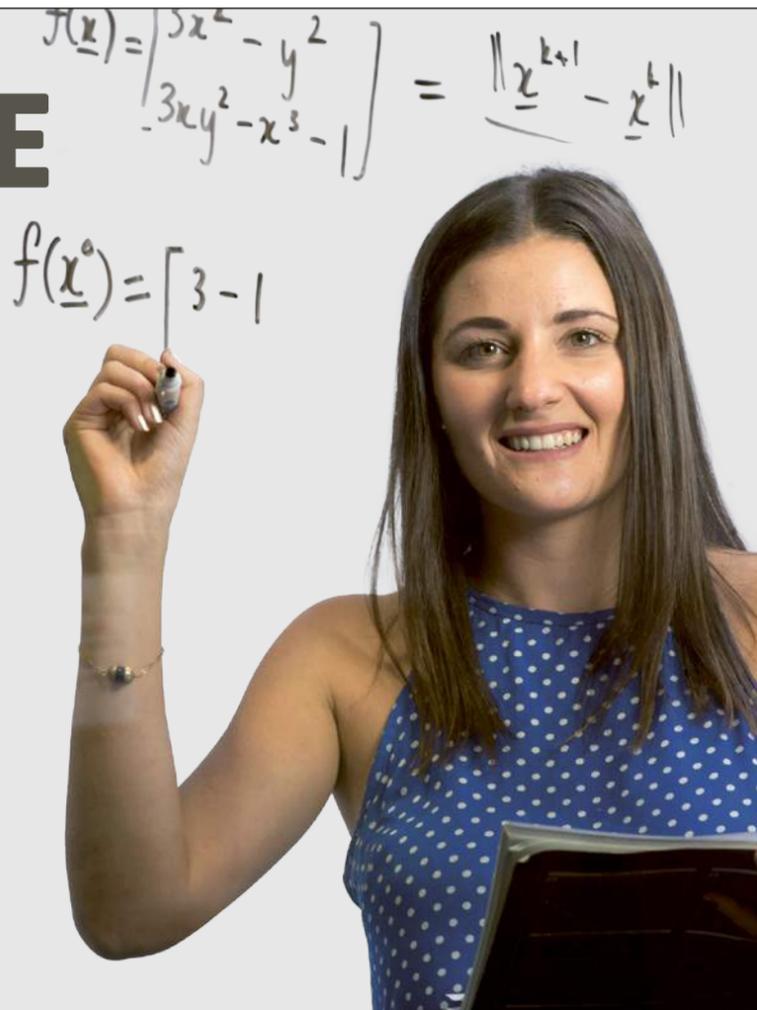
THE JOBS

PRODUCT ENGINEER
 SPORTS STATISTICIAN
 FOOTBALL ANALYST
 SPORTS ENGINEER
 SPORT SCIENTIST
 TEXTILE DESIGNER

THE EMPLOYERS

SPORTS ANALYTICS
 COMPANIES
 GOVERNMENT AGENCIES
 SPORTS ORGANISATIONS
 & TEAMS
 SPORTS TECHNOLOGY
 COMPANIES

WHERE WILL NEW TAKE YOU?



Without maths, interpreting the real world would not be possible. Mathematics is the language of science and underpins most technological advances that we rely on every day.

The University of Newcastle offers one of the few specialised Bachelor of Mathematics programs available in Australia. In addition to equipping you with essential skills and knowledge in mathematical theory and modelling, experimental design and data analysis, you will learn to harness your passion for mathematics to support changing technologies for future generations in your chosen path from a range of rewarding potential careers.

Should you be looking to expand your career options in the future, we also offer a range of postgraduate degrees in growth industries such as Data Science, Data Analytics and Integrated Science, Technology, Engineering and Mathematics.

If you're keen to be part of a community of like-minded mathematicians who will mentor you and provide you with hands-on learning support throughout your studies, explore our study options and discover what excites you most.

NO. 1

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NEWCASTLE.EDU.AU/DEGREES/BACHELOR-OF-MATHEMATICS
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1 Quality Indicators for Learning and Teaching 2018 2018 1298 | CRICOS Provider 001093



“ I BRING TOGETHER EXPERTISE IN THE AEROSPACE AND MEDICAL INDUSTRIES TO DEVELOP PROFESSIONAL COMPRESSION APPAREL TO SPORTSPEOPLE. ”

JAMES WALDIE

Co-founder & CEO – Cape Bionics
 Adjunct Principle Research Fellow – RMIT University

My studies in Aerospace Engineering and Bioastronautics has led to some pretty amazing things and taken me to some pretty amazing places. I studied at RMIT, UCSD and MIT, where my research focused on new spacesuit designs. Since then, I have been a consultant for NASA, served as a Principal Investigator with the European Space Agency (ESA) and worked as Postdoctoral Fellow at MIT, amongst other things.

A career highlight for me was watching a spacesuit I developed being worn for the first time in space! I was at the European Astronaut Centre in Germany and watched the live feed from the International Space Station. It was such an incredible experience – 15 years of hard work had paid off.

After many years working on spacesuit designs, I have now co-founded my own company called Cape Bionics. While I have spent a lot of time developing new technology

to improve the health of those in space, I now want to apply that technology to help those on Earth too! The purpose of my company is to bring together expertise in the aerospace and medical industries to develop professional compression apparel to sportspeople. We use maths to design custom garments which apply the perfect level of compression for different situations.

To do this, we scan a player and then analyse the scan to determine the player size. Then, we design a garment using a lot of equations so that the tension in the garment produces the right compression on the skin.

Currently our apparel is supplied to AFL and Rugby Union teams. While I am proud of my spacesuit success, only two astronauts have worn my suits in space. That's why I started Cape Bionics – next, I hope to see my compression technology worn by people all over the world.

JAMES' CAREER JOURNEY

> **B.Eng:** Aerospace > **BBA:** Business Administration > **PhD:** Aerospace Physiology
> Co-founder & CEO – Cape Bionics Adjunct Principle Research Fellow – RMIT University



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GRADUATE PROGRAMS

Graduate programs offer great pathways to those looking to transition into the workplace. They are also a great way for companies to tap into emerging specialised talent. Running over one to two years, graduates gain valuable workplace experience and benefit from mentoring, training, networking and social activities.

We recommend applying for programs early in your final year of study. This way you can finish your degree knowing there is a job waiting at the end.

Available graduate programs vary from year to year, depending on intake timelines. We've included a list of some examples of the types of opportunities open to mathematics and statistics graduates. You can find more options online or through your university career centre.

Gradaustralia
GRADAUSTRALIA.COM.AU

Gradconnection
GRADCONNECTION.COM.AU

Australian Mathematical Society
AUSTMS.ORG.AU/CAREERS

Statistical Society of Australia
STATSOC.ORG.AU/CAREER-RESOURCES

My Future – career information & exploration
MYFUTURE.EDU.AU

BUSINESS & MARKETING

Accenture, AECOM, Capgemini, Coles, IBM, SMS Management & Technology, Unilever, Woolworths

EDUCATION

Teach for Australia, Department of Education & Training

ENGINEERING & RESOURCES

AEMO, Arup, Hatch, Aurecon, Ergon Energy, Schneider Electric, Sydney Water, Water Corporation (WA), Rio Tinto, BHP Billiton, BP, Chevron, Santos, Wood Group, Woodside, WorleyParsons,

FINANCE & MONEY

Bloomberg, CPA Australia, Deloitte, Ernst & Young, KPMG, McGrathNicol, PWC, AMP, ANZ, ASIC, Australian Super, Bankwest, Bendigo Bank, CBA, GE, HSBC, IMC, Jane Street, Macquarie, Pitcher Partners, Reserve Bank of Australia, Suncorp Group, Westpac Group, Australian National Audit Office, Australian Treasury, Queensland Treasury, Allianz, Gallagher Bassett Services, GE, IAG, Medibank, Optiver, QBE, Suncorp

HEALTH & SOCIETY

Australian Bureau of Statistics, Australian Electoral Commission, CSL, Department of Human Services, Department of Infrastructure & Regional Development, Department of Premier & Cabinet (WA), Queensland Government, Victorian State Government

SCIENCE & ENVIRONMENT

Bureau of Meteorology, CSL, Department of the Environment & Energy, Department of Science & Innovation

SECURITY & DEFENCE

Australian Defence Force, Department of Defence, Australian Federal Police, DST Group, Lockheed Martin

TECHNOLOGY

Atlassian, Microsoft, Telstra

TRANSPORT & LOGISTICS

Qantas, Aurecon, Aurizon

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With our **Bachelor of Mathematical Science** you can explore a world of opportunities, in a diverse range of careers.

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*2018 Employer Satisfaction Survey, Australian Federal Government's Quality Indicators for Learning and Teaching (QILT.edu.au)



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PURE CLASS

Researchers in the Mathematical Analysis and Modelling Research Group at UNE solve problems in both pure and applied mathematics. They develop theoretical techniques through analytical as well as geometric and algebraic tools. It's a satisfying way to use a true language of science to model complex real life conundrums.

At UNE you can learn from, and alongside, teams of dynamic researchers and experienced lecturers in mathematics and statistics. If you are inspired by geometry and numbers, or wonder about the population dynamics of cane toads, let's talk. You could be the head of the next wave of Australian mathematicians.



Faculty of Science, Agriculture, Business and Law

une.edu.au/maths
 Assoc. Professor Gerd Schmalz:
schmalz@une.edu.au

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