RESEARCH AT CQU UNIVERSITY
CONTACT US

Domestic Students
13 27 86 (within Australia)
+61 7 4930 9000 (outside Australia)
www.cqu.edu.au

International Students
+61 3 9616 0606
www.cqu.edu.au/international-enquire

Research Division
CQUniversity Australia
Building 32, Bruce Highway
Rockhampton QLD 4702
AUSTRALIA
research-connect@cqu.edu.au
www.cqu.edu.au/research

The information contained within this guide is for both domestic and international students. Information specifically for international students is available at www.cqu.edu.au/international.

CQUniversity and the Australian Government want international students in Australia to have a safe, enjoyable and rewarding place to study. Australia’s laws promote education and consumer protection for international students.

These laws are known as the ESOS framework. For further information, please visit www.cqu.edu.au/esos.

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CQUniversity is emerging as one of Australia’s great research universities.

For many years, CQUniversity has been regarded by the Australian higher education sector as one of Australia’s most engaged universities. At CQUniversity we value our partnerships and the communities and industries we serve because this engagement informs our research focus.

We aim to achieve complete relevance in our research efforts through strong links with industry, government and communities, as well as through tight collaboration with national and international researchers and research networks. From agriculture to health, our research institutes and centres facilitate activity that involves our stakeholders and in turn makes a tangible impact.

As the only university in Australia with a physical presence across every mainland state, CQUniversity is also in the unique position of being able to establish and maintain networks and partnerships across the length and breadth of Australia. This incredible power of place allows the University to engage deeply, thoroughly understand, and place a complete focus on the issues that matter to those we seek to support. After all, great research is research brought about by engagement, and a need to seek relevant and meaningful solutions to complex issues.

In recent years, CQUniversity has been receiving more and more recognition for the research it delivers and our recent success is only matched by our strong objective to become one of Australia’s leading research institutions. What’s more, this focus on delivering great research will inform the design of all tertiary and vocational courses delivered by the University.

The future of research at CQUniversity looks very bright and it is exciting to be a part of a university that is actively working towards creating sustainable and successful outcomes for communities and industries across Australia and the world.

CQUniversity engages with community, industry and government stakeholders to deliver research that creates impact.

As a strong regional university, CQUniversity is committed to conducting research that creates impact and drives change. By working collaboratively with the communities and industries we serve, we are achieving some remarkable feats.

At CQUniversity we place an absolute focus on research that will make an impact and deliver solutions to complex problems. This is why we engage with stakeholders across all facets of our research undertakings, here in Australia and overseas. CQUniversity’s engaged research agenda allows us to undertake timely and relevant research.

In particular, we emphasise research that looks into regional development, growth in resource industries, environmental management, healthcare and health promotion in regional and remote communities, social and human development, and equity and education delivery.

This engaged research agenda is vitally important because more so than ever before, universities have a crucial role to play in influencing the growth, success and prosperity of Australia. They also have a specific responsibility to find innovative, sustainable and accessible solutions to the complex economic, social and environmental challenges currently impacting the world around us.

Working with end users to understand problems and uncover solutions sets CQUniversity apart when it comes to the delivery of real-world research. This will continue to influence our research philosophy, guiding our researchers to deliver outcomes that truly make a difference.

FOREWORD

Professor Scott Bowman, Vice-Chancellor and President, CQUniversity Australia

Professor Grant Stanley, Deputy Vice-Chancellor, Research, CQUniversity Australia

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CQUniversity Australia has been on a phenomenal trajectory in recent years, and its remarkable growth in student numbers, new courses, new campuses, infrastructure and reputation has seen it emerge as one of Australia’s truly great universities.

Originally founded in Rockhampton in 1967 as the Queensland Institute of Technology (QIT) Capricornia, it was granted full University status in 1992 and was named Central Queensland University. It now has more than 30,000 students and has firmly established itself as one of the largest universities based in regional Australia, with campuses in Adelaide, Brisbane, Bundaberg, Cairns, Emerald, Gladstone, Mackay, Melbourne, Noosa, Perth, Rockhampton, Sydney and Townsville. Along with these campuses, the University also operates study centres in Biloela, Broome, Busselton, Karratha and Yeppoon, and delivers courses in Cooma and Geraldton, thanks to partnerships with the respective university centres in those communities.

In 2014, the University merged with CQ TAFE, bringing together more than 175 years of combined experience in the delivery of education and training and establishing Queensland’s first comprehensive, dual sector university. As a result, CQUniversity now delivers more than 300 education and training offerings, from short courses and certificates, through to undergraduate, postgraduate and research degrees. Study areas include apprenticeships, trades and training, business, accounting and law, creative, performing and visual arts, education and humanities, engineering and built environment, health, information technology and digital media, psychology, social work and community services, science and environment, and English, study and work preparation. As a pioneer in the delivery of distance education, CQUniversity also continues to be a leader in this area with almost half of the current student cohort made up of students studying off campus, many of whom are based in rural and remote areas.

After more than half a century working with stakeholders in regional Australia, CQUniversity is now a renowned research institution in several key disciplines, and the benchmark leader for how universities should engage and collaborate with communities and industry. Its applied research focus is orientated towards real-world outcomes, with the purpose of providing solutions to challenges and identifying new opportunities for advancement in our regions and beyond.

In 2015, this research focus saw CQUniversity achieve Excellence in Research Australia (ERA) results of ‘at’, ‘above’ or ‘well above’ world standard in 14 categories of research including Mathematical Sciences, Applied Mathematics, Psychological and Cognitive Sciences, Nursing, Other Medical and Health Services, Agriculture and Veterinary Sciences, Environmental Sciences, Medical and Health Sciences, and Mechanical Engineering.

CQUniversity is proud to be recognised as Australia’s most inclusive university with the highest ratio of students from disadvantaged, mature-age, Aboriginal and Torres Strait Islander, and first-in-family backgrounds. This inclusive approach and commitment to access and participation means the University defines itself by who it embraces, rather than who it excludes.

Graduates from CQUniversity also have some of the best employment outcomes, with recent data released by Graduate Careers Australia (GCA) indicating that 80.6 per cent of domestic undergraduate students find full-time employment within three months of graduation. This figure is more than 10 per cent higher than the national average of 69.5 per cent. Data released by the Quality Indicators for Learning and Teaching (QILT)
website also shows that CQUniversity out performs the majority of Australian universities when it comes to study support, graduate employment and graduate salary outcomes.

CQUniversity also places a strong emphasis on social innovation and global outreach and fosters a number of key partnerships with communities, industry and government, both in Australia and overseas. This commitment to engagement and social advancement has led to CQUniversity being recognised as Australia’s first and only Changemaker Campus by Ashoka U, an exclusive global social innovation group made up of only 40 other education institutions across the world, driving initiatives that help to overcome social disadvantage, by working with stakeholders to develop solutions for whole of community.

CQUniversity’s unique vision for diversity, outreach, engagement, research, learning and teaching, and inclusiveness, combined with its growth aspirations and continued expansion of student success, research excellence, social innovation and community engagement, has led to it being recognised within the top 600 universities in the world by the prestigious Times Higher Education World Rankings, and among the world’s top ‘young universities’ by both Times Higher Education and the QS World University Rankings.

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RESEARCH FOCUS
CQUniversity’s applied research focus emphasises the translation and uptake of research findings to meet external stakeholder needs in the communities and industries it works with. The University’s research agenda is as much focused on the delivery of high-quality academic publications as it is on creating an impact for end users. Research at CQUniversity is conducted with the purpose of benefiting communities and industries by providing solutions to meet complex social, economic and environmental challenges and identifying new opportunities for advancement.

The University’s research is oriented towards real-world applications, including the provision of high-quality outcomes through translation and application of current research findings (mental health nursing, family and domestic violence, population health, education practice); influencing government policy and regulatory frameworks (fatigue management in fly-in/fly-out and drive-in/drive-out long distance commuters; marine biosecurity frameworks); and developing greater understanding of social issues of the day and contributing to decision making through salient advice (economic considerations of conflict between agrarian and resource extraction uses).

RESEARCH IMPACT
CQUniversity’s research focus and engaged research agenda are already making positive impacts on individuals, communities and industries across the world. In coming years this impact will continue to grow, expanding into new focus areas and transforming the way we think about current challenges.

The University’s research impact is apparent in improved industry processes, regional and economic development, business improvement, productivity and innovation, social advancement and equity and healthier communities.

IMPACT THROUGH ENGAGEMENT
ENGAGED RESEARCH
CQU’s research agenda is built around deep engagement with communities, industries and government. The focus is firmly on the delivery of research that is primarily relevant to the Northern Australia region. To deliver great research that is meaningful and relevant, researchers work directly with stakeholders to identify challenges and deliver solutions. The end user is involved throughout the entire research project. This approach ensures CQU’s research delivers direct benefit and long-lasting impact.

LEARNING AND TEACHING INFORMED BY RESEARCH
The research conducted at CQU helps to guide the design and delivery of learning and teaching. CQU strives to achieve a connected approach to research, learning and teaching, believing that ‘real-world’ research impacts not only the community it operates in, but so too a student’s experience across disciplines. This is evident in the way academics draw on their personal research in designing and teaching courses, where their research informs learning activities and academic discussion on contemporary issues. Research tasks are also embedded in many undergraduate coursework programs, providing students with opportunities to grow their understanding through knowledge creation. High achieving undergraduate students also have the opportunity to work closely with discipline research leads through programs such as the Rising Stars program.

SOCIAL INNOVATION
CQU is officially recognised as Australia’s only Changemaker Campus by global social innovation group Ashoka U. CQU achieved this reputation because of its strong engagement agenda and inclusive approach to the delivery of research, education and training.

Social innovation is about working with communities in a collaborative way, using a range of strategies, to find innovative and sustainable solutions to social needs or problems. Ultimately the philosophy is driven by the simple need to improve lives and create positive change within the world around us.

At CQU, social innovation is at the core of our strategic vision and for many years has been entrenched in our core values. CQU strives to empower its staff and students to make a difference, create an impact and influence the world in which we live, for the betterment of society.

This approach sets CQU’s research apart, as it means end users are involved in the research process, and research success is measured by the visible impact it is having on the communities and industries we seek to help.

RESEARCH FOCUS AREAS
- Sleep and biological rhythms
- Physical activity
- Human-animal interaction
- Community and disaster resilience
- Gambling and addictive behaviours
- Health promotion
- Human factors and safety science
- Ageing and health
- Agricultural management systems
- Environmental monitoring and management
- Medical and applied physiology
- Advanced clinical practice
- Creative and professional writing
- Digital media
- Education, training and employment pathways
- Performing arts
- Special education
- Scholarship of learning and teaching
- Critical social enquiry
- Health workforce development
- Quality and safety of health and aged care
- Mental health nursing
- Indigenous health equity
- Lived experience led mental health
- Domestic, family and sexual violence
- Simulation and innovative education
- Railway engineering, technology and innovation
- Intelligent system
- Clean energy
- Building forensics and civil engineering
- Mechatronics, automation and mobile technology
- Engineering and technology education
- Resource economics
- Health economics
- Workforce management
- Regional tourism
- Regional development and opportunity
CQU is recognised as delivering research of ‘at’, ‘above’, or ‘well above’ world standard in the areas of:

- mathematical sciences
- applied mathematics
- environmental sciences
- environmental science and management
- agriculture and veterinary science
- artificial intelligence and image processing
- engineering
- mechanical engineering
- medical and health sciences
- nursing
- public health and health sciences
- other medical and health sciences
- psychology and cognitive sciences
- other psychology and cognitive sciences.

*Excellence in Research Australia (ERA) 2015

- 14 different categories
- 340 research staff
- 420+ research higher degree students
- 130 research projects
- 650+ annual peer reviewed research publications
- 2 research institutes and 6 research centres

- $12.5m research income 2017
- $55+ m in competitive research income 2010 – 2016
Professor Drew Dawson
Director, Appleton Institute

Based in Adelaide, Professor Drew Dawson is the Director of the Appleton Institute, where he oversees a range of research projects, and guides the University’s Early Career Research program. Professor Dawson is nationally and internationally recognised for his contributions to the scientific community and to industry. He specialises in research related to sleep and fatigue, organisational psychology and human behaviour, industrial relations negotiation, and the human implications of hours of work, and is a world renowned expert on fatigue in the workplace. As such, he has instigated a number of fatigue management programs, developed shift work and fatigue policy, undertaken pre-employment assessments and facilitated shift work education sessions.

Professor Dawson’s research focus has led him to work extensively with the aviation, manufacturing, retail, entertainment, transportation and mining sectors in Australia. He also regularly presents at national and international conferences and has provided expert witness testimony as part of many workplace and fatigue related inquests and court proceedings.

The Appleton Institute is a multidisciplinary research hub based in Adelaide, South Australia. Established in 2012, the Appleton Institute combines excellence in research, teaching and community engagement, and focuses on a range of scientific areas including sleep and biological rhythms, applied psychology, occupational health and safety, safety science, human factors, risk management, cultural anthropology and immigration.

The Institute’s researchers also provide specialist consulting services and advice across a number of industries, on issues such as shift work and fatigue, industrial relations, human factors, safety management, worker participation and workplace agreements. The Appleton Institute has worked with organisations including BHP Billiton, The Kimberley-Clark Corporation, Mobil Industries Australia, National Rail, Pacific National Rail, QANTAS, Queensland Rail and RailCorp.

The Appleton Institute is currently demonstrating research impact through the delivery of a number of projects as part of the Bushfire and Rail Safety Collaborative Research Centres, and Australian Research Council Linkage projects focusing on food waste and animal behaviour.

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Associate Professor Roxanne Bainbridge
Director, Centre for Indigenous Health Equity Research

Based at CQUniversity Cairns, Associate Professor Roxanne Bainbridge is a Gungarri woman from South-Western Queensland. Associate Professor Bainbridge is a current National Health and Medical Research Council (NHMRC) Fellow and since the award of her PhD in 2010, has led four nationally competitive grant projects from the NHMRC and Australian Research Council. She is also a chief investigator on three Australian Research Council (ARC) grants including the National Indigenous Research and Knowledge Network (NIRAKN), Indigenous Research Impact, and Youth Services for Remote Communities.

Associate Professor Bainbridge has published more than 45 papers with a majority in peer-reviewed national and international journals. Through her expertise in the area of Indigenous health, she has also contributed to policy directions and worked to increase community health and educational resources.

The Centre for Indigenous Health Equity Research was established in 2016 with an aim to set a pioneering agenda for change in Indigenous health research by nurturing high-impact, applied research as an exemplar of best practice.

The Centre promotes the development of research capacity and capability with a focus on interdisciplinary and cross-cultural aspects of health and determinants of health to maximise outcomes. The Centre has a regional focus with extended national and international networks of researchers, communities, service providers, government and industry, to collaboratively meet the priority health needs and aspirations of local and international Indigenous communities.

In particular, the Centre comprises of six key integrated areas of research strength, focused on Indigenous health and wellbeing. The six areas include evidence synthesis for equity in Indigenous health; translation implementation and advocacy for change in Indigenous health; research and workforce capacity strengthening; impact assessment, evaluation and health economics; health determinants across the life course; and health services and policy research.

The Centre has brought together a group of researchers who specialise in socially innovative and participatory research approaches that are responsive to Indigenous health and education. Through this they will focus their research projects in areas such as resilience, cultural competence, family-centred interventions, implementation science and service integration, and health economics.
CENTRE FOR INTELLIGENT SYSTEMS (CIS)

The Centre for Intelligent Systems conducts outcome-driven and theoretical research into complex intelligent systems. The Centre places a strong focus on applied technologies related to information and community technology and engineering applications and computational intelligence, simulation, automation, robotics, smart networked devices and clean energy technology.

The Centre comprises a group of leading researchers with interests and collaborative partnerships that span across the globe. The Centre strives for excellence by not just identifying problems and solutions, but through involving stakeholders and end-users in the delivery of research projects and solutions. The Centre’s work is world-renowned and stands apart from other research being conducted in these areas because of the emphasis placed on community and industry collaboration. The Centre’s major projects include five ARC Discovery, ARC Linkage and Advance Queensland projects in Image Processing, Computational Intelligence, Fault Detection and Power Networks, Solar Batteries, and Clean Energy Technologies. The Centre is also undertaking a group of industry linkage projects with the Queensland Department of Transport and Main Roads, Elevare Energy, Western Power and Australian Road Research Board (ARRB) Group.

Professor Brijesh Verma
Director, Centre for Intelligent Systems

Based at CQUniversity Brisbane, Professor Verma is an expert in computational intelligence and pattern recognition, and has published 13 books, seven book chapters and more than 150 papers for high-quality journals and conference proceedings. He won the best overall paper award at the 2015 Institute of Electrical and Electronics Engineers Congress on Evolutionary Computation (IEEE CEC) in Japan. He is the President of INNS (International Neural Network Society) Australia Chapter. He has also served on the organising and program committees for more than 30 conferences and on the editorial boards of six international journals including IEEE Transactions on Neural Networks and Learning Systems.

Professor Verma has received more than $3.2 million in research funding from the Australian Research Council (ARC) and industry. As Centre Director, Professor Verma fosters a number of key relationships with industry stakeholders across a multitude of industry sectors from IT to transportation. His current ARC Discovery Project is focused on developing a novel framework for optimised ensemble classifiers and his current ARC Linkage Project is focused on developing novel tools for roadside fire risk assessment using computational intelligence and pattern recognition techniques.
Professor Colin Cole
Director, Centre for Railway Engineering

Based in Rockhampton, Professor Cole is the Director of the Centre for Railway Engineering and also currently serves as a Program Leader in the Rail Manufacturing Cooperative Research Centre. His work history includes more than 28 years in railway engineering and research, starting in 1984 with Queensland Railways. His PhD was in Longitudinal Train Dynamics. Throughout his professional and research career he has been extensively engaged with industry via the past Rail CRC programs and has continuing involvement via ACRI and the new Rail Manufacturing CRC projects. Professor Cole has completed more than 20 rail research projects related to train dynamics, simulation and development of on-board intelligent systems and devices and has published more than 100 technical papers, two books, two book chapters and has developed two patents.

CENTRE FOR RAILWAY ENGINEERING (CRE)

CQUniversity’s Centre for Railway Engineering is a well-established research organisation that boasts extensive expertise and impressive infrastructure, built on leadership and participation in three national cooperative research centres.

Over the past two decades the Centre has made a major contribution to Australia’s rail industry by initiating, supporting and championing research efforts that have involved and benefited industry organisations and professionals. Through its research objectives and close collaboration with industry, CRE has become internationally recognised as a leader in the provision of applied engineering research for rail operators and manufactures in areas of mechanical, civil and electrical engineering. Specifically, the Centre is a world leader when it comes to rolling stock and multi-body dynamics, condition monitoring and non-linear modelling.

The Centre has provided commercial research and consulting services to both national and international rail organisations including AECOM, Aurizon, Australian RailTrack Corporation (ARTC), Bradken, Calibre Global, Dedicated Freight Corridor Corporation of India, Deloitte India, Faiveley Transport, Pacific National, Rail Industry Safety and Standards Board (RiSSB), Research Designs and Standards Organisation (RDSO - Indian Railways) and the Queensland Government. The Centre is also engaged in product development for the Australian rail manufacturing sector and has established a record of original patented research in relation to this. The CRE is ideally positioned to continue its work with industry through its membership of the current Rail Manufacturing Cooperative Research Centre (RM CRC) and its role as one of the universities invited to be as a strategic partner of the Australasian Centre for Rail Innovation (ACRI).
The Centre for Regional Advancement of Learning, Equity, Access and Participation (LEAP) provides regional and national leadership in education and equity-related research. The Centre aims to achieve significant research and community impact through engaged research as a key priority in equity, access and participation policy and practice, the scholarship of learning and teaching, education, training and employment pathways, and healthy communities. In 2017, LEAP Centre members contributed to research aimed at improving educational outcomes for Aboriginal and Torres Strait Islander higher education students as well as youth with disabilities undertaking Cert II level training, improving retention and success of people from low socio-economic backgrounds, supporting rural and remote early childhood educators, optimising reading instruction for students from Prep to Year 3, empowering young people by building resilience in regional schools and engaging school students in Science, Technology, Education and Maths (STEM) through creativity.

The Centre for Regional Advancement of LEAP operates at the intersection between policy and practice and was founded on a commitment to developing strong community partnerships that will inform and utilise the Centre’s research. With partnerships now established across Australia, LEAP Centre researchers have demonstrated success in attracting research funding, releasing high-impact publications and implementing community outcomes for projects that address education and employment pathways and the use of innovative technologies to foster learning, teaching and professional education.

Through its partnerships, the Centre is dedicated to identifying areas of need and enhancing the capabilities of educators, service providers and employers. Going forward the Centre will impact the communities it serves by improving pathways to education and employment for current and future students, developing research degree pathways for undergraduate students and providing academic development opportunities for future teachers.

Professor Denise Wood
Director, Centre for Regional Advancement on Learning, Equity, Access and Participation

Based in Rockhampton, Professor Wood is the Director of the LEAP Centre and an Engaged Research Chair at CQUniversity. Her research focuses on effective strategies for enhancing the social and educational participation of people from diverse and disadvantaged backgrounds.

Professor Wood has been awarded more than $6 million in research income for projects that aim to improve social inclusion, educational and employment opportunities for people from disadvantaged backgrounds, and she has authored and co-authored more than 150 peer-reviewed publications. Her contributions to research and learning and teaching have been acknowledged through an Order of Australia Award, an SA Great Award, an Australian Learning and Teaching Council Award for Outstanding Contributions to Student Learning and the Telstra Christopher Newell Award for improving access to telecommunications for people with disabilities.
Regional areas have a critical role to play in the attainment of local, national and global goals in economics, productivity, social cohesion and sustainability. This is especially important in Australia where regional areas account for more than 40 per cent of the nation’s total economic output.

The CTRO was established to provide leadership, engagement and direction into Australia’s regional futures, with a specific focus on the requirements and capabilities of Northern Australia. The Centre is run jointly between CQU University’s School of Business and Law and Office of Indigenous Engagement, and responds to the many research gaps that exist when it comes to the role our regions play.

The Centre directs its resources and focus to community and industry engagement which informs applied and multidisciplinary research that investigates tourism, resource activity and regional development. Specifically, the Centre’s activity generates new information and understanding about tourism development, best practice resource management for regional outcomes, natural resource management and protection, human capital, entrepreneurial thinking, business and industry development and respecting and supporting Indigenous culture and communities in regional Australia.

The Centre operates out of Cairns and Rockhampton and pursues its research through an inclusive approach that involves deep engagement with community and industry across Australia. This engagement allows the Centre’s staff to work directly with the people that will potentially benefit from the information gathered and the subsequent projects that are realised because of research.

**Professor Bruce Prideaux**

**Director, Centre for Tourism and Regional Opportunities**

Based in Cairns, Bruce is the Director of the Centre for Tourism and Regional Opportunities and is course director for the Master of Sustainable Tourism Management. He has a wide range of research interests including coral reef tourism, protected area tourism, rural tourism, remote area tourism, Indigenous tourism, urban tourism, river and canal tourism and climate change. Other active areas of research include military heritage, mobilities and ecotourism. He has authored more than 300 journal articles, book chapters and conference papers on a range of tourism issues. He has also published 10 books, the most recent of which looks at climate change issues and global rainforest tourism. Current projects include a co-edited book that will investigate aspects of coral reef tourism and a co-authored book that examines opportunities in agricultural areas.
In 2015, CQUniversity established its flagship Institute for Future Farming Systems to drive the delivery of new agricultural innovations and provide an environment for practical, skills-based training and research-led teaching delivered by industry experts.

CQUniversity’s agricultural research program is a world-leader in delivering practical solutions which are bolstering the productivity, profitability and sustainability of the livestock and horticulture sectors. In particular, it is internationally recognised for its specialist skills in the development of non-invasive, precision management tools.

Importantly, its research is grounded in industry needs – the Institute’s researchers live and work in the communities they serve, with staff working closely with industry partners and primary producers in regions well-known for food production including Bundaberg (Australia’s largest vegetable-producing region) and Rockhampton (Australia’s beef capital). This unique power of place means the Institute is well-positioned to provide leadership and partnership to the agricultural industry operating out of Northern Australia and is able to identify and research new opportunities that have the potential to benefit the industry and its producers.

Among its many successes have been the development of the widely adopted hand-held NIRS (near infrared spectrometry) gun, which assesses the ripeness of fruit, bolstering crop productivity through optimised harvest timing and improved fruit quality. In the livestock sector, the research team has developed automated data gathering tools to monitor the condition of individual animals and assisting graziers in more effectively managing their livestock.

The research conducted by the Institute has been informed by industry and has had direct impact on helping producers to improve productivity and profitability, and also helping them to make more informed decisions about production, marketing and sustainability.
The Queensland Centre for Domestic and Family Violence is based in Mackay and works with communities, service providers, government and law enforcement agencies across Australia. The Centre provides leadership when it comes to research into the areas of domestic, family and sexual violence.

The Centre’s focus is on initiating and undertaking collaborative, interdisciplinary research that supports the development of policy and practice when it comes to domestic, family and sexual violence prevention, service provision, victim and survivor support, and perpetrator intervention programs, particularly within rural and regional communities.

The Centre also promotes and supports coordination, production, and review and customisation of training resources to support the development of a standardised and effective knowledge base for service providers.

The Queensland CDFVR has delivered national research as part of the Queensland Government’s contribution to the Australian National Research Organisation for Women’s Safety (ANROWS), Not Now, Not Ever report. This research looked at the enforcement of protection orders and judicial education, in particular, the enforcement of domestic violence protection orders in Australia, with a particular focus on the enforcement of orders across borders and different legal jurisdictions.

The research delivered by the Centre has also contributed to the development of Australia’s first specialised domestic violence practice postgraduate courses. The courses provide students with best-practice, evidence-based learnings, specific to the domestic, family and sexual violence prevention and support provision. The courses equip professionals working within the space with the most relevant skills and knowledge for their area of practice, whether it be service provision or law enforcement.

The QCDFVR receives funding from the Queensland Department of Communities, Child Safety and Disability Services, and also works with a number of other funding and community partners.

Associate Professor Annabel Taylor
Director, Queensland Centre for Domestic and Family Violence

Based in Mackay, Associate Professor Taylor has been the Director of the Queensland Centre for Domestic and Family Violence since 2014. Associate Professor Taylor’s main research interests are in gender-based violence and criminal justice social work. She has published widely on topics related to criminal justice and women, child protection and domestic and family violence, and has co-authored a book, Understanding Violence: Contexts and Practice in the Human Services.

Associate Professor Taylor is currently leading two major evaluation projects involving the trialling of integrated responses to domestic and family violence in Queensland and the education and training of Queensland Police Service members in responding to domestic and family violence. She has played an integral role in pioneering the development and implementation of both accredited and non-accredited education and training programs related to domestic and family violence prevention and support provision, at vocational and higher education levels.

Associate Professor Taylor’s leadership and expertise in the area of domestic and family violence has also led to her being appointed to the Queensland Premier’s Domestic and Family Violence Implementation Council.
The potential for death, injury or legal action is always lurking just under the surface during Queensland’s annual Schoolies Week celebrations.

Thankfully, there’s now a living laboratory enabling research which can fine-tune the most effective ways to deliver safe behaviour messages to senior school students, reducing their likelihood of taking risks.

For the past 17 years, that laboratory has developed through the Choices Applied Theatre project, based at the Central Queensland Conservatorium of Music (CQCM) at CQUniversity Mackay Ooralea.

The Choices program has involved close cooperation between CQUniversity and Queensland Police, Queensland Health, the Department of Community Services, 29 high schools and various community groups.

It promotes safe behaviour for Year 12 students heading to Schoolies Week, using a comic theatre format of short skits, songs and dances, performed by CQUniversity theatre students.

Uniformed police officers also participate in the performances and related panel discussions, adding credibility to the important health, safety and legal messages.

CQUniversity’s Professor Judith Brown AM has been involved throughout the development of Choices and has also taken a key role in researching the effectiveness of the program.

‘Before the implementation of Choices in 1999, Year 12 students in North Queensland received the health, safety and legal messages concerned with safe partying during Schoolies in formal presentations from teachers, police officers, health workers and other community leaders,’ Professor Brown said.

Although this style of delivery presented the facts to the students, it failed to engage them meaningfully, leaving the presenters feeling they had been less than effective in getting these important messages across to the students.

‘In contrast, the 50-minute live theatre presentation, Choices, makes use of current teenage pop culture references that incorporate over 30 key safety messages.

‘Research conducted by researchers from CQUniversity and the University of Queensland found that using the Choices format of a live theatre performance as a safety response for Schoolies, enabled students to translate knowledge acquired during the presentation into behaviours resulting in safer celebration.’

Professor Brown said the research found that while the Choices program did not influence young people’s risky drinking during Schoolies, watching the Choices presentation reduced the risk of illicit drug use during Schoolies by 50 per cent and reduced the risk of engaging in risky behaviour by 59 per cent; even after controlling for the effects of gender, pre-Schoolies drinking, binge drinking and illicit drug use at Schoolies.

In 2008, police data showed there were no liquor offences against Mackay students who had seen Choices, yet in the same year many were issued to Townsville students who had not seen the Choices program. This was the main driver behind the expansion of Choices to include the Townsville region from 2009 onwards.

‘Our research has been studying the effect of using a harm-minimisation framework within the medium of applied theatre (broadly defined as using theatre to address social issues) on reducing risky drinking, illicit drug use and problem behaviours during Schoolies, such as driving under the influence of alcohol and drugs and getting into arguments.’

Professor Brown has also focused on Choices as a research case study into performing arts leadership development, and enhancing graduate employability through community engagement projects.

‘This intense engagement with the project partners and the end-users provides CQUniversity theatre students a unique opportunity to engage in a significant and sustainable social innovation project, developing tangible leadership skills through service learning as well as bringing their tertiary performing arts curriculum to life through an authentic live touring experience,’ Professor Brown said.

‘Choices aims to provide the university student participants with a wealth of learning experiences including teamwork, problem solving, leadership, service learning and engagement with their local community; working side-by-side with health professionals, law enforcement officers and community agencies.

‘The students volunteer and audition for various roles, and faculty mentor the senior students as directors,
writers and choreographers, with the junior students filling the assistant leadership roles.

‘The integration of the Choices program into the undergraduate curriculum now promotes an ongoing impact as students engage with this project in an altruistic way, seeing the value in bringing important safety messages to Northern Queensland communities.’

Professor Brown noted that Schoolies is a major social phenomenon in Australia, where thousands of young people converge on beachside holiday destinations to celebrate the end of their secondary schooling and the transition from adolescence to adulthood.

She said the harm minimisation approach of Choices had proven effective in delivering important health, safety and legal messages to students before they arrived at the event.

‘The Choices team, made up of CQUntersity students and faculty, and representatives from relevant Queensland Government agencies, meet regularly throughout the year to oversee the writing of the script, as well as to plan and implement the performance tours,’ Professor Brown said.

‘Choices has been performed for 17 consecutive years with over 230 performances to over 26 000 Year 12 students.

‘In that time, over 150 CQUntersity theatre students have been involved as performers, directors, script-writers and choreographers.’

The Choices project began as a partnership between Central Queensland Conservatorium of Music (CQUntersity), Queensland Police Service and the Alcohol Tobacco and Other Drugs Service of Queensland Health.

Since that time, the committee has included representatives from government in the areas of transport, communities, sexual health, Indigenous drug and alcohol programs, liquor licensing, state education, Catholic education, accommodation providers at Schoolies, Red Frogs, mental health agencies, Rotary clubs, private businesses, and the Friends of the Conservatorium, as well as the founding partners.

The Choices program has expanded for delivery across regional Queensland centres including Bundaberg, Rockhampton, Yeppoon, Mackay, Moranbah, Proserpine, Bowen, Ayr, Townsville, Ingham, Tully, Innisfail and the Atherton Tablelands.

The project has also become a model for another theatre collaboration between the Mackay Crime Prevention Unit of the Queensland Police Service and CQUntersity – the Safety Circus which educates primary school aged students on bicycle safety, bullying and safe relationships with adults.

In 2017, Choices won an Australian Financial Review Higher Education Award, in the Community Engagement category.

The CQUntersity Choices program is an initiative delivered by performing arts students at the Central Queensland Conservatorium of Music, in conjunction with government agencies including the Queensland Police and Queensland Health. The program delivers important safety and health messages about Schoolies Week to Year 12 students in central and northern Queensland.

Research was conducted in relation to the program to understand if the messages being delivered were impacting rates of risk-taking behaviour, alcohol consumption, illicit drug use and rates of arrest. The research was undertaken to help tailor messages and better understand the target audience.

PARTNERS
Queensland Police, Queensland Health, Whitsunday Regional Council, high schools in central and northern Queensland and the University of Queensland.

IMPACT
Research of the program has found that it has helped to reduce illicit drug-taking by 50 per cent and has also reduced risk-taking behaviour by 59 per cent.
LEADING TO GLOBAL ECONOMIC BENEFIT – RESEARCH AND SUPERCOMPUTING DRIVING IMPROVEMENT IN RAIL VEHICLE DRAFT GEARS

Professor Colin Cole, Professor Maksym Spiryagin and Dr Qing Wu

The economies of global resource leaders like Australia and China rely on more than just the quality of their coal and iron ore. Transport is also a huge factor.

It’s imperative that there are also improvements in the transport of key commodities to keep up with demand for energy and products – trillions of dollars are at stake. Heavy-haul rail haulage is involved in supply chains of the vast majority of the key bulk commodities.

Ever larger and heavier trains continue to increase challenges for rail vehicle structures and connection systems. These old designs need to improve to increase service life and capability, while also reducing vehicle mass and train energy use.

A key component in rail design improvement is the ‘draft gear’ consisting of springs, wedges and plates to provide friction damping and cushioning between wagons. Changes in stiffness and damping can improve wagon structure life and allow for longer maintenance periods on draft gear components and longer life of the vehicle structures. Alternatively, the reduced fatigue can allow new rolling stock designs to reduce vehicle mass for train energy savings.

As the existing designs are relatively old, several intuitive cycles of design improvement have already occurred as these products have developed in industry. Finding further improvements via a knowledge of the problems or by trial and error methods is unlikely to discover improvements.

The Centre for Railway Engineering (CRE) at CQU has developed software using methods involving dynamics simulations, genetic algorithms and particle swarm optimisation. New draft gear designs can be generated and tested in large-scale train simulation studies.

Senior Research Officer Dr Qing Wu, who recently completed his PhD with CQU under the supervision of Professor Colin Cole and Professor Maksym Spiryagin, said the team had harnessed computer power through in-house software tailored for super computers.

Using the super computers made available by CQU, the team can now finish simulations in a few weeks that would once have taken decades.

‘It is the advancement in software structure and super computers that made the fast improvement of draft gear designs possible,’ Dr Wu said.

‘The team has already produced optimised draft gear designs with significantly decreased coupler forces and fatigue damage.

‘We have shown that improved draft gear designs can indeed lower the in-train forces and thus alleviate the fatigue damage.’

This has helped to progress heavy-haul draft gear designing with the help of a purpose-built laboratory rig at CQU’s Centre for Railway Engineering in Rockhampton. This powerful rig can generate forces of up to 400 tonnes and can emulate both field conditions and vehicle impact conditions for draft gears.

‘We can now do proof-of-concept tests and accelerated lab tests in tandem with computer simulations,’ Dr Wu said.

‘We can configure our laboratory testing and simulations to represent various train configurations and different draft gear types’.

The impressive draft gear testing facility is the most recent large test rig installed in the laboratory. As floor space is limited, the CRE heavy testing lab functions as a giant ‘meccano set’, with experimental rigs designed and built to suit the project.

Since 1999, the list of experimental installations has also included: wagon suspension shaker rig, bogie brake testing rig, wall shear testing rig, bridge girder test rig and a rail joint roller rig. The rail joint roller rig has been recently re-commissioned for use in the development of rail crack detection transducer systems. Research has to be agile and responsive to industry interests and needs.

Draft gear research is part of a larger area of research known as longitudinal train dynamics. Areas of work in this area span the topics of locomotive traction, hybrid locomotives, in-train forces, rolling stock life, long train instability, derailment investigations, energy studies and train control.
CQUniversity’s Centre for Railway Engineering works with industry partners across the world to research and develop solutions that will help improve efficiencies and safety. It’s imperative that this research drives improvements in the transport of key commodities to keep up with demand for energy and products. With trillions of dollars at stake, the Centre has been researching the use of supercomputing for the optimisation of rail draft gears to improve design and increase service life and capability, while also reducing vehicle mass and train energy use. This has involved the development of software for dynamics simulations, genetic algorithms and particle swarm optimisation. New draft gear designs can be generated and tested in large-scale train simulation studies.

**PARTNERS**
Various Australian and international rail industry organisations and university rail research groups.

**IMPACT**
Using the super computers at CQUniversity, the team can now finish simulations in a few weeks that would once have taken decades. The team has already produced optimised draft gear designs with significantly decreased coupler forces and fatigue damage.
DRESSING UP TECH TO SWITCH GIRLS ONTO STEM

Dr Wendy Fasso

Attracting young people to STEM (science, technology, engineering and mathematics) subjects is an ongoing challenge for educators and schools across the nation. The need to do so has never been more critical, with new data revealing that a majority of the jobs of tomorrow will be reliant on STEM skills. In particular there is an even greater challenge to attract and retain women within this field.

Seeking a solution to this challenge, education researchers from CQUniversity have been working with Bundaberg high schools and teachers to pioneer a science meets fashion approach, which gives young women in the junior years of high school the chance to explore design and technology through the creation of wearable art.

A partnership between CQUniversity and the Bundaberg Regional State High Schools Careers Project enabled two successive Education Horizon Research grants to be applied for and approved, making the pilot project a reality.

This pilot program, known as the Makerspace Project, coordinated through CQUniversity’s Centre for Regional Advancement of Learning, Equity, Access and Participation (LEAP), aims to engage young women in STEM by allowing them to interact with technology such as 3D printers and software to design wearable pieces of art such as costumes and jewellery. The project enables participants to incorporate software coding into art, fashion and hairstyles – melding technology with creativity and ensuring science is connected to their everyday interests.

By showing that gadgets such as programable lighting circuits can be incorporated into fashion and art, the research team and students hope the participants will gain a better understanding of the broad scope in which STEM impacts daily life and potentially switch them onto potential careers in STEM.

CQUniversity education academic Dr Wendy Fasso said the students in the initial sessions have completed projects such as illuminated shadow boxes, fashion fabric sample pages, 3D printed fascinators and illuminated bracelets. ‘The purpose of delivering this program and researching levels of engagement is to assess how the application of technology when it comes to fashion design can bolster girls’ interest in the STEM subjects.

‘There are many girls who have a firm projection into STEM from an early age, and progress to careers in STEM after school. However, we are still seeing a gap when it comes to the participation of women within STEM fields – both within education and in the workplace. That is because there are many girls who do not see STEM as an enterprise in which they belong, often due to conformity pressures,’ Dr Fasso said.

‘Our research as part of this project definitely supports that fact that a lack of interest in STEM is not ability related, but rather more closely associated with personal interests, social values and conforming to peer influence. ‘Certainly, we found that at the beginning of the project many of the girls who participated in the activity were disengaged with STEM and this, they told us, had a lot to do with conforming to social norms – those subjects aren’t recognised as being a ‘cool’ thing for girls to do.

‘Fortunately, though, our research is showing that the Makerspace Project allowed the girls to see just what is possible when it comes to STEM.

‘The creative links that are forged in the project stimulated interest in STEM and the girls who participated in the project were able to see that STEM is more than just calculators and lab coats, that STEM skills can be applied to a multitude of vocations and interests.

‘Our Makerspace girls told us ‘we didn’t think we could but we can’. They were actually frustrated they could not immediately go further with their software coding and programing. They developed an interest and skills in solving problems, and found out that they are good at it.’

Dr Fasso said the key element of the Makerspace Program is to tap into girls’ creative interests, and create space safe away from social pressure, to play and explore links with STEM in the critical ‘tween’ years, between 10 and 14.

‘We’ve been working directly with teenagers as part of the project but the research is showing us that there is a need to influence girls at a much younger age before they become obsessed with conforming to social norms,’ Dr Fasso said.

‘We need to provide a non-judgemental bridge period until girls are confident enough to embrace the idea of engaging in science and technology,’ she said.

‘Before seeing science as ‘nerdy stuff’ or ‘boy stuff’ and before they become products of the social norming process, we need to work with girls without interruptions or distractions while they are formulating their self-concept. Our data shows that engagement in the project has enhanced not only the girls’ confidence
that they can tackle difficult STEM problems and succeed, but also their sense of value of the types of technologies we have used in their everyday, creative lives.

“We need to reach them and capture their interests before the ages when they are interrogating who they are and before they are bombarded with conflicting messages about stereotypes and gender roles.

“Promoting science to girls in Years 10, 11 and 12 through university school visits is successful for those who are moving in a STEM projector, but is really too late for maximum influence. For many, choices about engagement in STEM in middle schooling limits their options in senior school. Research also shows that for this group of girls, single interventions are not always successful, and that longer-term projects are more successful in questioning their interests and decisions.

“I’ve been joining the dots through this research project and its findings, and can see it’s crucial that, during the ages they are formulating their ideas of who they are and what they can achieve, and forming their friendship circles, we influence their study interests and ensure they are able to connect STEM to their interests and everyday lives as girls.

DESCRIPTION
CQU University’s Centre for Regional Advancement of Learning, Equity, Access and Participation (LEAP), has coordinated the delivery of a STEM education program and research project, aimed at engaging girls in the early years of high school. The Makerspace Project is a pilot study that allows young women to interact with technology to design wearable pieces of art such as costumes and jewellery. The project enables participants to incorporate software coding into art, fashion and hairstyles – melding technology with creativity and ensuring science is connected to their everyday interests.

PARTNERS
Bundaberg State High School and Isis State High School.

IMPACT
The pilot study has shown that many young women disconnect with STEM in the early years of high school due to conformity pressures. The study has shown that by combining STEM principles in the areas of design and technology, with fashion and art, young women are re-engaging with STEM and improving their skills and understanding of where STEM can take them.
A global report on education performance has shown that Australia is achieving well below par when it comes to reading, maths and science. In fact, according to the latest Program for International Student Assessment (PISA) results which looks at the achievements of 15-year-olds across the world, Australia is on a downward trajectory in these three core areas of learning. These findings have been supported by National Assessment Program – Literacy and Numeracy (NAPLAN) scores.

The nation’s poor reading achievements have been of particular concern to CQUniversity education researchers who acknowledge that despite intensive reading reforms at state and national levels, Australian youth are still behind our international peers. The findings have urged a research team, led by CQUniversity’s Professor Bruce Allen Knight, to employ a new, practical, teacher capacity-focused lens to the challenge of improving reading instruction for beginner readers.

A priority of the Bridging the Gap for At-Risk Readers: Reading Theory into Classroom Practice research project was to work closely with Prep to Year 3 classroom teachers to create and trial new resources and strategies to improve reading in these early years of school, providing a foundation for further learning to occur. Researchers surveyed more than 300 Education Queensland teachers and worked closely with more than 60 exemplary Mackay teachers in an attempt to improve the reading outcomes of young readers at risk of not meeting the national minimum standards for reading as outlined in NAPLAN.

According to Professor Knight, impacting reading capacity in young learners must be driven both by relevant research and classroom evidence as understood by teachers. ‘The key to orchestrating sustainable impact on classroom instruction and student outcomes lies in the development of relevant, contextualised programs and practices based on principles supported by research and relevant to teachers’ cultural understandings and professional knowledge.’

As part of this collaborative study with classroom teachers, researchers established a shared knowledge base of principles for effective reading instruction, complete with strategies and sample activities. ‘The full resources document discusses key issues for teaching at-risk readers and provides a rationale, lists of strategies and examples of activities using the instructional principles,’ explained Professor Knight.
Three clusters of principles were used to create a framework that included the ‘How, Who and What’ of teaching at-risk readers. These were formulated into the Teaching Smart (how): Teach strategically for effective learning; Teaching Heart (who): Teach to maximise student ownership, engagement and motivation; and Teaching for the Brain (what): Teach strategically to achieve effective reading development components.

‘These findings appear to be more acceptable to teachers and the strategies have been trialled in real classroom environments. They are therefore more likely to inform and guide practice,’ explained Professor Knight.

‘The project has resulted in impact on teacher knowledge which in turn has influenced their pedagogy and use of strategies to support students’ early reading and literacy skills. There has also been a significant impact on the lowest performing students’ skills.

‘Going forward there is potential as the principles and strategies are used by more teachers, that the practices will be widely implemented in schools.’

The research project was based on an ARC linkage grant 2013–2017 and was undertaken through CQUniversity’s Centre for Regional Advancement in Learning, Equity, Access and Participation (LEAP).

DESCRIPTION
International research shows Australian students still lag behind their international counterparts when it comes to reading, maths and science, despite intensive reading reforms. These findings led a CQUniversity research team to employ a new, practical, teacher capacity-focused lens to the challenge of improving reading instruction for beginner readers. Researchers worked closely with Prep to Year 3 classroom teachers to create and trial new resources and strategies to improve reading in these early years of school, providing a foundation for further learning to occur.

PARTNERS
Education Queensland.

IMPACT
As part of this collaborative study with classroom teachers, researchers established a shared knowledge base of principles for effective reading instruction, complete with strategies and sample activities. The full resources document discusses key issues for teaching at-risk readers and provides a rationale, lists of strategies and examples of activities using the instructional principles.
Northern Australia is famous for its sub-tropical climate. This climate allows the region to produce some of the world’s best and freshest tropical fruits for local sale and export. But, there are disadvantages – the region is far from large population-centre markets, and at the end of supply chains for labour and materials.

Growers are constantly trying to find better ways to plan crops and resources, increase production, market their product, manage their supply chain and achieve better financial returns. This need has led the industry to investigate how emerging technologies may be able to help growers improve yields and on-farm efficiencies.

A research team, led by CQUniversity’s Professor Kerry Walsh, has been working in collaboration with fruit growers, horticultural industry bodies and technology solution providers to develop technologies that can help farmers improve their yields and potentially automate on-farm processes in the future.

This research direction was instigated by an approach to researchers from Central Queensland pineapple growers, almost two decades ago, with the aim of finding a way to prove that the regions produce was sweeter than that of their South East Queensland counterparts.

Near Infrared Spectroscopy (NIRS) technology was identified and developed for in-line (pack house) sorting, in conjunction with MAF Oceania Pty Ltd, and handheld (in orchard) assessment, in conjunction with Felix Instruments Inc. Pineapples proved to be a difficult subject, due to their rough, thick skin. However, it was found that the technology suited thin skinned fruit, such as apples and mangoes. It was found this technology was useful in providing an objective measure of fruit on the tree, guiding the decision on when to harvest. This type of information is invaluable to producers as harvesting too early results in immature fruit reaching market, while harvesting too late results in fruit that are softening and do not pack and transport well.

Now, two decades later, the research and technology has evolved into a multi-pronged approach to assess fruit quantity and quality of fruit on tree, in the orchard, and to assist farm management decisions. Current projects include in-field machine vision for estimation of tree flowering time, and estimation of fruit number and size, and a wireless orchard temperature logging system. These measures can assist in identifying the optimal time to schedule the harvest, amount of labour required for the harvest, and resources and logistics to get the fruit to market.

Data however, is just numbers. That is why the research group has been developing a web application to turn complex data into information and knowledge. The app presents the various data streams visually, allowing for ease of use by growers. Combined with the growers’ experience and knowledge of their crops and farm management processes, growers can use the web app to strategically manage their crops and harvest resources, creating better efficiencies and reducing waste.

This research and development work has been funded by Horticultural Industries Australia (HIA), with the research team working in close collaboration with the Australian Mango Industry Association and specific growers.

In current development is the use of machine vision cameras carried on farm machinery through fruit orchards to record and map the extent of tree flowering. Early flowering trees will have early maturing fruit, which can be selectively harvested and targeted to particular markets.

With the start of flowering mapped, the time to fruit maturity can be estimated from so called ‘heat sums’ that integrate temperature across time. However, collecting temperature data on farm is another tedious task for the grower, so the team are developing a system based on low-cost wireless temperature recorders, placed throughout orchards, that record and transmit temperature conditions to the app, with automatic updating of the heat sum and projection of likely maturity/harvest date.
The machine vision cameras used to record and map the extent of tree flowering are also being trialled in estimation of fruit number on the trees. This activity can help to provide growers with an early assessment of crop quantity, allowing them to plan harvesting and packing resources and estimate possible crop returns.

Finally, with crops near maturity, the handheld NIRS instrument can be used to assess on-tree fruit quality in the orchard. These sensors determine the fruit’s dry matter content, which is an index of fruit starch and sugar content. Essentially, this index correlates to how good the fruit will be, come time to eat. A low dry matter content means fruit is not yet ready to harvest, while a higher reading means fruit is reaching the right level of maturity for harvest. This means growers can harvest fruit at optimal times to improve the ease of harvest and packing and ensure the eating quality of a crop. The instruments have GPS capability, so all data can be easily shown on the app, with automatic calculation of block averages and rate of increase.

The CQUniversity research team is currently working primarily with three fruit growers as part of this project – mango and avocado farms near Childers and Rockhampton, and a mango farm near Darwin.

Acacia Hills mango farmer Martina Matzner has worked with the team for five years to plan harvests and manage resources. She said that the technology had provided invaluable information about getting the timing of harvest right, leading to improved pack out, recruitment of harvest and sources and supply chain management.

‘The use of this technology has allowed us to more precisely plan our labour for harvest and importantly allows us to plan the order of harvests for blocks based on what trees are bearing the most mature fruit.

‘It means we can improve efficiencies, reduce waste and increase returns,' said Ms Matzner.

Working with technology solution providers MAF Oceania and Felix Instruments, as well as industry partners, the CQUniversity research has been able to commercialise this research and is now expanding the project to other fruit crops, such as avocado.

Professor Kerry Walsh said that as well as expanding the research to other fruit, the group would continue to refine the technologies in issue.

‘It is an exciting period, with amazing developments occurring in technology such as NIRS sensors, inmachine vision and in autonomous vehicles. All these developments can be put to use when it comes to a variety of Australian tree crops.

‘The long-term objective here is automated harvest. Now we have machine vision ‘seeing’ the fruit for counting purposes – its foreseeable that automated harvest is possible.

‘Mango crops are a natural fit for this. The fruit is large and relatively robust, and finding harvesting labour willing to work in 40 degree Celsius heat and endure the acidic sap burns that come with harvesting the fruit, is often difficult for growers,’ said Professor Walsh.

The research team will continue to trial the technologies and methods for automated harvest with mango growers and is also exploring opportunities to use the technology in avocado and stone fruit crops.

**DESCRIPTION**

The non-invasive assessment of fruit quality research project uses technology to assess crop productivity and fruit quality, collating the data on an app that producers can analyse to plan their crop harvest, assign resources and improve supply chain efficiencies.

**PARTNERS**

Horticultural Industries Australia (HIA), Central Queensland and Northern Territory mango growers; Wide Bay avocado growers, Australian Mango Industry Association, MAF Oceania Pty Ltd and Felix Instruments.

**IMPACT**

The research conducted has enabled mango producers to more strategically plan the harvest of crops, improving the planning of harvest labour and supply chain logistics. This has led to better on-farm efficiencies and stronger yields. The research is now working towards the potential to automate crop harvests.
CREATING CHANGE THROUGH REFORMING GIVING, TO GROW INDIGENOUS EMPOWERMENT

Associate Professor Henrietta Marrie

Strategic philanthropy could help transform community-based Indigenous service provision, if Australian charity law was amended to recognise a range of Indigenous considerations.

That’s the recommendation of a national research project led by CQUniversity’s Associate Professor Henrietta Marrie, who continues to work collaboratively with philanthropic and Indigenous organisations to achieve these changes.

The research, to better understand how current Australian charity law impacts on philanthropic support for Indigenous community-based organisations, engaged with organisations across the Indigenous not-for-profit community, and with government and legislative bodies, to better understand obstacles and opportunities for driving Indigenous philanthropy.

Beginning as an independent project funded by The Christensen Fund (Palo Alto, California) in 2013, Associate Professor Marrie and her team assessed the structure and systems of more than 5000 charities and not-for-profit organisations across the Indigenous community sector.

After analysing relevant policies and surveying both Deductible Gift Recipients (DGR) and non-DGR Indigenous organisations, Associate Professor Marrie held collaborative workshops and consultations for community groups and peak bodies across Queensland, Western Australia, the Northern Territory and Victoria.


The research found many Indigenous communities, particularly in remote areas, felt threatened by this trend, as Indigenous-led community-based organisations struggled to continue without this income.

“We identified a need for what I refer to as ‘Indigenous philanthropy’ – a shift from short-term to long-term giving, embracing collaboration and partnerships,” Associate Professor Marrie explained.

“In Australia there has been a lot of short-term giving to Indigenous projects, with amounts up to about $20,000, but this creates a dependence on philanthropy.”
An Elder of the Gimuy Walubara clan of the Yidinji people and Traditional Owner of the land on which the City of Cairns and southern suburbs are now located, Associate Professor Marrie said changing the approach could transform lives in Indigenous communities.

‘Strategic longer-term philanthropy is needed to empower Indigenous people,’ she said.

The research findings prompted recommendations to introduce a new “Indigenous empowerment” category to the Charities Act 2013, incorporating:

» Indigenous community development (cultural, social, economic development, and land and natural resource management);
» Indigenous community benevolence (i.e. a community-based approach to the delivery of services normally delivered by mainstream organisations with PBI or harm prevention charitable status);
» enjoyment and exercise of native title and other Indigenous land rights and interests;
» promoting reconciliation between Indigenous Australians and the wider community;
» advocacy.

Now, backed by CQUniversity, Associate Professor Marrie is working with Indigenous communities and Philanthropy Australia to carry out final consultations to seek support for the proposed amendment, for consideration by Federal agencies and ultimately the Federal Parliament.

Associate Professor Marrie hopes that adoption of the amendment would allow more meaningful measurement of the impact made by Indigenous community organisations, and better understanding of their work within philanthropic Australia.
A spotlight is shining on how Australia responds to domestic and family violence, with a range of new initiatives to take on the confronting issue at state and national level.

With an average of one woman killed every week by their partner or ex-partner, and hundreds of thousands of adults and children impacted by domestic and family violence every year, many lawmakers, decision makers and leaders are labelling the issue as a national emergency.

In Queensland, one key project for change is a series of ‘integrated service response trials’, driving collaborative, coordinated responses between community, government agencies and non-government domestic and family violence support services.

Recommended by Queensland’s Not Now, Not Ever report, in 2016 the Queensland Government commissioned researchers from CQUniversity’s Queensland Centre for Domestic and Family Violence Research (QCDFVR) to evaluate and report on these trials.

Led by CQUniversity academic Dr Heather Lovatt, the QCDFVR research project is undertaking an 18-month evaluation of the integrated response trials in Logan-Beenleigh, Cherbourg and Mt Isa, focusing on the co-design and the development of new response models at each site.

Delivering six-monthly reports to the Queensland Government, the researchers’ findings will also guide improvements to the trial sites’ procedures, and inform a state-wide rollout.

Dr Lovatt said working closely with local government and non-government service providers in the three locations had given her team a front line understanding of domestic and family violence issues for whole-of-community.

‘We’re working with everyone who has a role keeping victims safe and holding perpetrators to account – that’s police, hospitals, domestic violence services, and corrections staff,’ Dr Lovatt explained.

‘The Premier’s Special Taskforce on Domestic and Family Violence in Queensland recognised there’s no one-size-fits-all for these issues, so being in each community to understand and evaluate the co-design process taking place is vital.’

Dr Lovatt and her team visited the three sites to review the trials before submitting an initial report to the Queensland Government, and will regularly return to assess early outcomes throughout the 18-month process.

‘Co-design is a really challenging process, as there are so many different opinions about what approach will work – so being in the room to understand how these discussions are resolved, and how decision making proceeds, is vital,’ Dr Lovatt said.

‘The research will also give the local community confidence in the integrated response models developed, that they are best-practice and relevant to their region.’

Each site presents unique challenges. For instance, Cherbourg is a discrete Indigenous community, and also Queensland’s third-largest Aboriginal community.

In that location, Dr Lovatt and her team are working closely with the Cherbourg Integrated Safety Response (ISR) Multi-Agency Governance Group, and also the Community Advisory Group, to ensure processes are culturally sensitive and tailored to community challenges.

‘For instance, in Cherbourg we’ve seen the process establish a high risk team, with officers from all agencies having a role in keeping victims safe and holding perpetrators to account,’ Dr Lovatt said.
‘That was a real milestone for the community, and the process we’ve monitored in developing that will inform similar initiatives state-wide.’

As part of the project, QCDFVR will review the trialling of a suite of tools, including an information sharing protocol, a common risk assessment framework, and a process for managing high-risk cases.

These will help ensure people affected by domestic and family violence receive consistent support that meets their needs.

The trials are part of wide-ranging recommendations in the *Not Now, Not Ever* report, which supports the Queensland Government’s Domestic and Family Violence Prevention Strategy 2016–26.

‘QCDFVR has been at the forefront of changing the conversation around domestic and family violence,’ Dr Lovatt said.

‘*Not Now, Not Ever* is an opportunity to really transform how domestic and family violence victims are supported, and ensuring the integrated response model is effective and research-based is crucial to achieving that.’

**DESCRIPTION**
Recommended by Queensland’s *Not Now, Not Ever* report, in 2016 the Queensland Government commissioned researchers from CQUniversity’s Queensland Centre for Domestic and Family Violence Research (QCDFVR) to evaluate and report on integrated service response trials. The QCDFVR research project is undertaking an 18-month evaluation of the trials in Logan-Beenleigh, Cherbourg and Mt Isa, focusing on the co-design and the development of new response models at each site.

**PARTNERS**
Queensland Government agencies, non-government agencies responding to domestic and family violence.

**IMPACT**
Delivering six-monthly reports to the Queensland Government, the researchers’ findings will also guide improvements to the trial sites’ procedures, and inform a state-wide rollout.
Over recent years, CQUniversity's environmental, social and economic researchers have worked side-by-side with community and industry to keep the Gladstone Harbour flowing towards a healthy future.

Professor John Rolfe, who is the chair of the Independent Science Panel for Gladstone Healthy Harbour Partnership (GHHP), said although the University had played a role in the harbour’s health for 20 years, it recently intensified its monitoring through several research projects.

‘GHHP contracts out research projects for assessment and monitoring each year and CQUniversity teams have won two of the tenders – one to assess the social, cultural and economic aspects and the other related to the health of mud crabs in the catchment,’ Professor Rolfe said.

‘CQUniversity has been involved in the past through the Port Curtis Integrated Monitoring Project (PCIMP), which conducts regular water and sediment samples in the harbour, but the projects to monitor mud crab health and the cultural and economic aspects of the harbour are more recent.

‘Dr Andrew Irving, Dr Ami Anastasi and Dr Emma Jackson are involved with the PCIMP program, while Dr Nicole Flint and Dr Emma Jackson are leading the assessment of mud crab health in the harbour. A different team, led by Dr Jill Windle, are performing the social and economic assessment, conducted through annual household surveys together with other economic data.’

The monitoring of mud crabs involves catching specimens at more than 20 sites across the harbour, close to mangrove areas. Some of the key data collected includes weight, size and sex, as well as assessments of health.

The social and economic aspects are collected via a random telephone survey each year of households in Gladstone, including a number of questions about satisfaction with different aspects of the harbour as well as information about recreational use. Secondary data on shipping, tourism and commercial fishing is also collected. All the data is then combined to construct harbour health scorecards.

The data collected through the various GHHP research projects is compiled into an annual report card and presented to the GHHP, which consists of 26 partners representing community, Traditional Owners, industry, harbour management and government. ‘The CQUniversity researchers are part of a larger group, including industry and community, which contribute to the report card.

‘The Gladstone Healthy Harbour Partnership and the Independent Science Panel put together the report card from all available information. This provides government, industry and community with a snapshot of the condition of the harbour and trends over time.

‘It is important because this knowledge can help transform policy and improve outcomes for members of the community and the industries that rely on the Harbour,’ said Professor Rolfe.

‘It helps to build trust in reporting and management, and also identifies key assets at risk and concern. Management of the harbour and environmental assets are different responsibilities, but the report cards are one of the ways of providing information into the management processes.’
DESCRIPTION
Over recent years, CQUniversity’s environmental, social and economic researchers have worked side-by-side with community and industry to keep the Gladstone Harbour flowing towards a healthy future. Two CQUniversity research teams are working together as part of the Gladstone Healthy Harbour Partnership (GHHP) to monitor and assess the health of the Gladstone Harbour, assessing social, cultural and economic aspects of the Harbour, and the health of mud crabs in the catchment.

PARTNERS
Gladstone Healthy Harbour Partnership (GHHP) – an alliance made up of 26 partners representing community, Traditional Owners, industry, harbour management and government.

IMPACT
The 2016 Gladstone Harbour report card revealed that despite some issues with seagrass and coral health, largely due to the 2013 flood, the economic performance and social grading of the Harbour had improved due to improved community perceptions towards air and water quality and increased shipping and tourism scores.

CQUni’s combined research is having positive flow-on effects by keeping both stakeholders and the community informed of changes in the Harbour.

The 2016 Gladstone Harbour report card revealed that despite some issues with seagrass and coral health, largely due to the 2013 flood, the economic performance and social grading of the Harbour had improved due to better community perceptions towards air and water quality and increased shipping and tourism scores. The report card is distributed to 2000 stakeholders, and the results are delivered at more than 20 professional presentations each year.

The research also informs the local education curriculum, with the report being reconfigured as a storybook and distributed to 5000 homes, schools and businesses in the Gladstone region.

‘CQUniversity researchers have become more involved in the research since the report card first started, and it’s a really good example of how CQUniversity is contributing to wider community issues impacting regional Australia,’ Professor Rolfe said.
ECOLOGY AND CONSERVATION FOR CENTRAL QUEENSLAND KOALA HABITATS AND POPULATIONS

Dr Alistair Melzer

They’re cute, they’re cuddly and they’re certainly well researched.

Australia’s native koala has been the focal point for CQUniversity’s community-funded research program Koala Research – CQ (formally Koala Research Centre of Central Queensland).

Since 1994, the research group has been working to understand the ecology and conservation biology of koalas in regional and remote Queensland. This has involved study of:

» ranging behaviour, habitat use, tree selection and food choices;

» population dynamics, longevity and diseases as well as trends in abundance;

» genetic relatedness among populations;

» conservation planning and management of populations and habitat.

Koala Research - CQ Adjunct Research Fellow

Dr Alistair Melzer said the team has been busy working at sites across Central Queensland including Biloela, Springsure, Tarnbo, Hughenden, Nebo, Central Queensland coastal islands, and St Lawrence to pursue the regional scale assessment of koala habitat health, and of threatening activity – especially around highways.

‘As part of this we have mapped and modelled the distribution of koala habitat across the Central Highlands, Rockhampton, Livingstone and Isaac local government areas. The habitat health study, led by Dr Michael Hewson, involves the use of air photography as well as satellite-born sensors,’ Dr Melzer explained.

‘We have also undertaken comparative studies in Southeast Queensland and in southern Victoria in collaboration with other institutions.’

Dr Melzer said that his team had worked on a diverse range of koala research projects from radio tracking to habitat analysis, just to name a couple.

‘Initially our work involved radio tracking of koalas to see where they go and what they do – determining home range size and overlap as well as habitat use,’ Dr Melzer said.

‘In parallel we have studied the nature of the habitat that the animals are using. This involved measuring the moisture and chemistry of the food species that they depend on, as well as recording the weather and other environmental factors that affect both the koalas and the trees they use. Forest tree density, leaf cover and structure are all important,’ he continued.

As with most research, there are no simple answers or solutions. However, Dr Melzer said there had been some significant findings to come out of the existing research to date.

‘Perhaps the most significant thing has been the realisation that koalas use their habitat in quite complex ways. They adjust their tree use so that there is a different set of trees used by day and by night. At night, tree use is predominantly associated with feeding and social interaction. By day, tree use is associated with shade and maintaining body temperature. Here koalas may use rainforest trees, wattles, and mangroves as well as the expected eucalypts.

Dr Melzer said that koala diets were also a complex topic.

‘Although koalas will predominantly eat eucalypts, they also eat a diverse range of other tree species in small amounts, as well as soil, bark and termite mounds,’ he explained.
Drought, heat waves and associated fires are the primary drivers to population declines across much of regional Queensland – although development along the coastal strip and around coal mines is also destructive.’

Dr Melzer said that although there had been major losses of koala habitat across Central Queensland (up to almost 90 per cent in some local government areas), the research team’s modelling and maps had revealed that there are significant remnants of habitat.

‘There is also an opportunity to re-establish koala populations within their former range.’

Along with Dr Melzer, the CQU Koala Research group also includes Dr Michael Hewson, Dr Flavia Santamaria and Mr Rolf Schlagloth.

‘Current research collaborators are Earthwatch Institute, Queensland Parks and Wildlife Service, Rockhampton Regional Council through the Rockhampton Zoo, and researchers from the University of Queensland and Deakin University.

‘Koala Research - CQ has always been a community-based research group. Because we are a small group, our research program has always engaged in collaboration with partners and volunteers so as to bring about multidisciplinary teams to address complex ecological problems,’ Dr Melzer said.

‘Our key aims are the conservation and long-term management of koalas and their habitat in regional Queensland.

‘Whilst this may involve increased protection, we recognise that success will only be achieved by working in partnership with rural land holders, upon whose lands the majority of Queensland’s koalas live.

The research conducted by Koala Research - CQ is ongoing and long-term, and findings along the way have helped to guide decisions and policy-making to ensure koala habitats and populations are protected through conservation activities and community education.
ASSESSING THE EFFECTIVENESS OF TREATMENTS TO COMBAT THE ROOT-KNOT NEMATODE

Dr Jady Li

Following the removal of chemical nematicide products from the market in recent years due to concerns about toxicity impacting on human and environmental health, the agricultural industry and in particular the sweet potato industry has become increasingly threatened by the invasion of the root-knot nematode (RKN).

The worm-like parasite found in the soil is estimated to cause more than $100 million in losses per annum losses to the Australian agricultural industry.

The urgent need for growers to access effective and reliable treatment to combat this costly challenge has led CQUniversity researcher Dr Yujuan ‘Jady’ Li to collaborate with the Queensland Department of Agriculture and Fisheries and Australian Sweetpotato Growers to determine new insights into control methods.

Dr Li, who has also worked with industry bodies including Syngenta, Organic Crop Protectants and Bio John Rural, has been leading three research projects surveying the presence of different plant-parasitic nematode species in sweet potato growing areas. In a first-time approach in Australia, the research has also assessed the effectiveness of alternative management practices including the use of fungal applications to control root-knot nematodes in both sweet potato and ginger crops.

The products trialled included three chemicals, Tervigo, Vydate and Nimitz; and two organic products, Nemguard and Compost-Aid applied with Soil-Set.

The crop was harvested and assessed for nematode damage at 160 days after planting of the Orleans variety of sweet potato.

The results of the six month trial have presented a complex picture of the variability faced by producers when determining the most suitable control product for their crop, with the effectiveness of the chemical products varying based on soil nematode numbers.

‘Of the three chemicals, Nimitz provided the highest and most consistent control in this trial, followed by Vydate and Tervigo respectively,’ Dr. Li said.

‘The two organic products performed similarly well under low nematode pressure, however the effectiveness of both was below average in areas with higher nematode numbers.

‘Compared to the chemical products, the effectiveness of both organic products was lower regardless of nematode numbers.’

Sweet potato growers have been eager for new insights with more than 50 Bundaberg region growers, as well as state and national industry representatives recently turning out to inspect the progress of the collaborative trial between CQUniversity and the Department of Agriculture and Fisheries.
With limited nematology expertise in Australia, the research collaboration between Dr Li and key industry partners is of vital importance to Queensland’s $2.4 billion horticulture sector.

‘As root-knot nematodes have such a wide range of hosts, finding an effective treatment has the potential to have a big benefit, not only for sweet potato and ginger growers, but for the whole horticultural industry,’ she said.

Dr Li said this trial is the first step in providing growers with a variety of crop protection options to control the damage of RKN but the results are indicative of the need for further research.

‘The results of this trial will help to guide growers in their search for nematode protection, however more research will be required to provide understanding into the causes of such variability in product performance.’

The next stage of the research will investigate the causes of this variability, with further products and applications rates to be tested before best practice recommendations can be made to growers.

**DESCRIPTION**

The research is trialling new control methods of the highly damaging root-knot nematode in sweet potato and ginger crops by surveying the presence of different plant-parasitic nematode species in sweet potato growing areas and assessing the effectiveness of alternative management practices including the use of fungal applications.

**PARTNERS**

Co-funded by the Department of Agriculture and Fisheries. Dr Li has also collaborated with CQUniversity research student Upamali Peiris and technician Karli Groves, Australian Sweetpotato Growers Association, Syngenta, Organic Crop Protectants and Bio John Rural.

**IMPACT**

The critical review on the effectiveness of control methods has produced a complex picture of the variability faced by producers when determining the most suitable control product for their crops. The research is the first step in providing growers with a wider range of options however more research is needed to determine the causes of such variability in product performance.
All of CQUniversity's masters by research and doctoral courses are based on a research project carried out by the candidate, under supervision of well-qualified supervisors from amongst the University’s academic staff.

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<tr>
<th>ENTRY REQUIREMENTS</th>
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<tr>
<td><strong>Master By Research</strong></td>
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<td>» Honours degree from the University or any other approved institution in a relevant discipline</td>
<td>Full-time: 2 years</td>
<td>Supervised research project</td>
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<td>» three year undergraduate degree (pass) and a graduate diploma in a relevant discipline</td>
<td>Part-time: 4 years</td>
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<td>» three year undergraduate degree (pass) in a relevant discipline, plus a minimum of one year’s relevant work experience</td>
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<td>» three year undergraduate degree with a Credit level Grade Point Average (GPA) in a relevant discipline</td>
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<tr>
<td>» four year undergraduate degree at a high level of academic performance in a relevant discipline, or</td>
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<td>» such other qualifications and experience as are deemed by the University to be of equivalent scope and standard.</td>
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| **Doctor of Philosophy (PhD)** |          |十一 |
| » Masters degree either by research or with a substantial element of research work within it, from a university or any other approved higher education institution | Full-time: 3 – 4 years | Supervised research project |
| » bachelors degree in an appropriate discipline with first class or second class honours conferred by a university or any other approved higher education institution, or | Part-time: 6 – 8 years | |
| » such other qualifications and experience as are deemed by the University to be of equivalent scope and standard. | | |

| **Doctor of Education (EdD)** |          |十一 |
| » Not less than five years of professional experience in education | Full-time: 3 – 4 years | Supervised research project |
| » Master of Education (Research), or coursework masters degree | Part-time: 6 – 8 years | |
| » bachelors degree in an appropriate discipline with first class or second class honours conferred by a university or any other approved higher education institution, or | | |
| » such other qualifications and experience as are deemed by the University to be of equivalent scope and standard. | | |

| **Doctor of Professional Studies (DProfSt)** |          |十一 |
| » Masters degree either by research or with a substantial element of research work within it, from a university or any other approved higher education institution | Full-time: 3 – 4 years | Supervised research project |
| » bachelors degree in an appropriate discipline with first class or second class honours conferred by a university or any other approved higher education institution, or | Part-time: 6 – 8 years | |
| » such other qualifications and experience as are deemed by the University to be of equivalent scope and standard. | | |

| **Doctor of Philosophy By Portfolio** |          |十一 |
| » Entry into this course is by special application to the Research Higher Degrees Committee. The University will consider applications for admission to candidature for the Doctor of Philosophy by Portfolio from individuals who can clearly demonstrate existing peer-reviewed research outputs to be considered for an award of a doctoral degree. In particular, such output must be: | Full-time: 1 year | Supervised period of research focused on preparing existing works into thesis format |
| » a. work for which the applicant is largely responsible (for example, as demonstrated by authorship sequence) | Part-time: 2 years | |
| » b. cogent; occurring within a unified area of study, and | | |
| » c. of a volume and quality that aligns with the expectations of an Australian doctoral degree. | | |

| **Master of Research (Offshore)** |          |十一 |
| » Honours degree from any approved institution, in a relevant discipline | Full-time: 2 years | Supervised research project |
| » three year undergraduate degree with a credit level GPA preferably in a relevant discipline | Part-time: 4 years | |
| » four-year undergraduate degree with a credit level GPA preferably in a relevant discipline, or | | |
| » such other qualifications and experience as are deemed by the University to be of equivalent scope and standard. | | |

| **Doctor of Philosophy (Offshore)** |          |十一 |
| » Masters degree either by research or with a substantial element (typically one-half) of research work | Full-time: 4 years | Supervised research project, undertaken by distance education |
| » bachelors degree in an appropriate discipline with first class or second class honours, and | Part-time: 8 years | |
| » such other qualifications and experience as are deemed by the University to be of equivalent scope and standard. | | |

*Masters by research courses include CA40 Master of Applied Science, CA45 Master of Arts, CA81 Master of Business, CU37 Master of Communication, CA73 Master of Education, CA63 Master of Engineering, CQ17 Master of Health Science, CU90 Master of Human Movement Science, CU36 Master of Informatics.

NOTE: The course information above is correct at the time of printing. Please visit www.cqu.edu.au/rhd for the latest information.
FEES AND CHARGES

Pursuing your research higher degree at CQU is more affordable than you think.

AUSTRALIAN GOVERNMENT AND CQU UNIVERSITY SCHOLARSHIPS

The Australian Government, through the Research Training Program, provides block grants to the University to support research training of domestic students and international students undertaking research higher degrees at CQU. Specifically, the Research Training Program provides for:

- RTP Fees Offset Scholarships – which are allocated to individual students by way of satisfaction of their liability for RHD tuition fees;
- RTP Stipend Scholarships – to assist students with living costs while undertaking a research higher degree; and
- RTP Allowances – to assist students with the ancillary costs of a research higher degree.

CQU, our industry partners and the Australian Government all offer a range of scholarships that you may be eligible for, to assist with living expenses. Find out more about current scholarships here: [www.cqu.edu.au/rhdscholarships](http://www.cqu.edu.au/rhdscholarships).

Students who are not eligible for allocation of an RTP or CQU Fees Offset Scholarship, or who have exceeded the standard duration of enrolment, will be liable for tuition fees.

OTHER FEES AND COSTS

CQU domestic candidates will be charged a Student Services and Amenities Fee levy, which is currently around $150 per half year term. The Student Services and Amenities Fee is a compulsory fee charged by universities and other higher education providers to fund and improve services and amenities of a non-academic nature.

PHD BY PORTFOLIO

The Doctor of Philosophy by Portfolio is a full fee-paying course which will enable candidates to complete a PhD thesis incorporating pre-existing peer-reviewed research outputs. Candidates will enrol for a minimum of one year to complete this course. Students enrolled in a PhD by Portfolio are not eligible for the award of an RTP or CQU Fees Offset Scholarship, and separate course fees apply.


*Please note that all fees and charges are correct at time of printing, but are subject to change.
GENERAL INFORMATION

FINDING A SUPERVISOR
A research higher degree is a course of supervised research and study that will lead to the development of a thesis in the chosen field of study. Applicants are strongly encouraged to work with their proposed supervisor to develop a research proposal prior to applying for admission. Information about available supervisors and their areas of expertise can be found at www.cqu.edu.au/research/current-research/find-an-expert.

RESOURCES FOR RESEARCH HIGHER DEGREE CANDIDATES
CQU makes available a range of resources and funding for research higher degree candidates, including Research Project Funds (to assist with the direct costs of research), a Conference Presentation Funds, access to free research training and a new desktop or laptop computer.

INTAKE DATES
Research higher degree applications are invited all year round. There are no set intake dates for research higher degree programs.

CAMPUS AVAILABILITY
On-campus domestic and international students are encouraged to be located at the campus where their Principal Supervisor is located. Campus locations: Adelaide, Brisbane, Bundaberg, Cairns, Emerald, Gladstone Marina, Mackay Ooralea, Melbourne, Noosa Study Hub, Rockhampton North, Sydney, Townsville. Research higher degree candidates may also study via distance.
ENGAGE WITH US

CONSULTANCY
Industry organisations can engage CQUniversity Australia researchers and/or facilities to provide expertise and a range of testing services on a fee-for-service basis. CQUniversity consultants can also be engaged to undertake confidential research activities where the data and results are owned wholly by the commissioning industry party.

CONTRACT OR COLLABORATIVE RESEARCH PROJECTS
Contract or collaborative research projects range from small-scale, short-term projects to major multi-year collaborative projects. Industry partners may fully fund the direct research costs of the projects or partner with CQUniversity to leverage funding from agencies such as the Australian Research Council or state government programs such as Advance Queensland. Ownership of intellectual property arising from the research activities are negotiated on a project-by-project basis.

INDUSTRY STIPEND SCHOLARSHIPS AND TOP-UP SCHOLARSHIPS
Industry stipend scholarships and top-up scholarships can target dedicated full-time or part-time student research projects in particular areas of industry need. Research projects may range from two years (Master by Research) or three to four years (PhD). Scholarship stipends typically cover living expenses and associated costs for students and commence from $27,000 per year (full time rate) and $5,000 to $10,000 per year for top-ups. Scholarship awardees may commence at any time during the year.

TUITION OFFSET SCHOLARSHIPS
The Australian Government and CQUniversity fund a number of tuition offset scholarships for domestic and overseas research higher degree students. In addition, industry partners have the opportunity to sponsor offset places for nominated students to undertake research higher degrees in specified research areas. The industry sponsorship covers all or a part of the cost of a full fee-paying place for the student, ranging up to $20,000 to $25,000 per year. Funded place-holders may commence their studies at any time during the year. Many of these students also enjoy the opportunity to work for the industry partner while undertaking their studies.

For further information about sponsoring research or consultancy at CQUniversity please contact the Research Division. Email research-connect@cqu.edu.au or call +61 7 4970 7330.