UC's Physics and Astronomy Department's observatory on top of Mt John, near Lake Takapō (Tekapo), provides exceptional conditions for astronomical observation and discovery. Many visitors are inspired by the outstanding view of the starry southern sky. UC's Associate Professor Christoph Bartneck explains how he captured the Chronicle cover image: "The landscape was covered in snow, reflecting the starlight back onto the environment. The panorama was taken using a robotic head that moved the camera all around while taking many photographs. The resulting photographs were then stitched together in the computer creating a Gigapixel Panorama with an unparalleled level of detail."
Dr Sarah Lovell explores how dairy farming has affected community capacity in Mataura.

Salome Fa’aso’o was one of two UC teaching students who won Kupe scholarships for Māori and Pasifika High Achievement.

Sharing his love of volcanoes, Associate Professor Ben Kennedy won UC’s prestigious Teaching Medal for 2019.

Haere-roa, the new UCSA facility, was among the buildings officially opened on campus recently.

Canterbury University Press published Frankie McMillan’s latest work.

Queen of the Cosmos’ Beatrice Tinsley was one UC alumni featured on space pioneer stamps.
Drone doctors take flight

When assessing someone’s health, one of the first things a doctor does is measure the patient’s vital signs. But how do you measure vital signs when your patient is a huge, endangered paikea humpback whale?

New UC research suggests drones could be the answer.

In a world first, a team of international scientists led by UC Associate Professor Travis Horton has measured the temperature, respiration rate and heart rate of a free-swimming whale using a ‘drone doctor’.

“Measuring whale health remains a long-standing challenge for cetacean scientists and conservationists, but advances in drone technology, infrared imaging and data processing have created unique opportunities to help whales survive,” Associate Professor Horton says.

Every winter, paikea humpback whales return to their tropical breeding grounds throughout Te Moana-nui-a-Kiwa Oceania to give birth and raise their newborn calves.

During the 2018 calving season in Rarotonga, Associate Professor Horton’s team of scientists discovered they could take pictures of the whales from above, using a non-invasive quad-copter drone. The drone recorded high-resolution infrared videos of a mother whale resting at the ocean’s surface over a period of three hours.

The resulting data allowed the team to measure body temperature, breathing rate and heart rate based on changes in skin temperature at the blowholes and major arteries present in the dorsal fin.

The research will help South Pacific nations better understand endangered paikea humpback whales. It will also establish a novel technological platform for measuring the biomedical condition of cetaceans in highly utilised marine environments, including animals tangled in fishing lines, and live-stranded whales.
Driven by a love of volcanoes and fun

Associate Professor Ben Kennedy has won the prestigious Te Tohu Pākai Ako | UC Teaching Medal for 2019.

The UC Teaching Medal is awarded in recognition of an outstanding and sustained contribution to teaching at the University. Amokapua Akoranga | Assistant Vice-Chancellor Professor Catherine Moran describes Associate Professor Kennedy as a charismatic teacher who combines his passion and enthusiasm for his subject with energy and commitment.

“Ben inspires the best possible outcomes for students through reflective teaching that is student-centred, experiential, highly structured and constantly updated through collaboration with peers,” she says.

An expert in physical volcanology, Associate Professor Kennedy says his research and teaching are “driven by a love of volcanoes and fuelled by experiments and projects that are fun, exciting and important to society”.

A previous recipient of both a Tohu Ako | UC Teaching Award and an Ako Aotearoa National Sustained Tertiary Teaching Excellence award, Associate Professor Kennedy has developed an outstanding track record of teaching excellence and effective and wide-ranging teaching leadership over the past decade.

Associate Professor of Academic Development Dr Erik Brogt describes him as an educator who practices what he preaches.

“Ben’s approach [to teaching] is helping bring about a culture change in how teaching is viewed at the University, with benefits to students far beyond the Department of Geological Sciences.”

The 2019 Teaching Medal will be formally awarded to Associate Professor Kennedy at a Kaunihera o Te Whare Wānanga Waitaha | UC Council function in November this year.
UC fire engineers warmly welcome new FENZ educational facility

UC is looking forward to closer collaboration with Whakarongo Iwi | Fire and Emergency New Zealand (FENZ) when the new fire station and research facility open next to the University’s Engineering precinct.

The two organisations plan to share resources and expand current Fire Engineering research, further strengthening the long-standing relationship.

UC Tumu Whakarae | Vice-Chancellor Professor Cheryl de la Rey welcomed FENZ into the UC community. “Our students and engineering staff will benefit from hands-on practical learning and knowledge sharing, plus the Ilam community will benefit from reduced response times and increased local resource,” she says.

“UC is the only university in New Zealand to offer qualifications in Fire Engineering. This close relationship with Fire and Emergency will further increase the industry relevance of the UC engineering qualification as students will benefit from embedded practical learnings, and the opportunity to connect with industry professionals.”

UC’s Director of Studies for Fire Engineering, Dr Anthony Abu, is the FENZ Senior Lecturer in Structural Fire Engineering and says closer collaboration with FENZ will expand knowledge in areas such as firefighter safety and advanced warning systems.

UC has enjoyed a close relationship with FENZ for more than 26 years, which includes FENZ funding a senior lecturer role and student scholarships of up to $80,000 annually.
Turning food waste into bioplastics

An ingenious new solution being engineered at UC aims to turn food waste into valuable chemical components that could be used to make bioplastics.

At UC’s Department of Chemical and Process Engineering, Dr Alex Yip is leading research into food-waste conversion. He is working collaboratively with Hong Kong Polytechnic University to design and develop a catalyst to achieve this.

“The ultimate objective is to produce a high-value product from food waste,” Dr Yip says. “To date, we have completed a proof-of-concept showing that it’s feasible.”

The project’s goal is to extract three key chemical components, including polylactic acid (PLA) and the organic compound 5-HMF, from the food-waste stream. These could then be used as building blocks to make sustainable bioplastics with various properties to suit consumer needs.

Bioplastics produced from food waste would be 100% recyclable or fully biodegradable. They could be used for products such as biodegradable bin-liners.

“Tackling food waste not only addresses the financial costs but also adds value to that waste,” Dr Yip says. “At the same time, we are responding to another environmental problem in Aotearoa New Zealand, which is the plastic waste problem.”

Dr Yip was recently awarded the 2019 New Zealand–Chinese Youth Scientist Award by the New Zealand–Chinese Scientist Association. He received the award for his significant contributions to zeolite catalysis science, and advancing research and commercialisation opportunities that benefit Aotearoa New Zealand and Chinese societies.
Canterbury researchers seek firmer footing for ‘disaster law’

UC law experts Professor John Hopkins and Lecturer Dr Toni Collins of Te Kura Ture | School of Law are looking into major earthquakes and aftershocks in Te Whanganui-a-Tara Wellington that have legal, health, economic and social consequences.

The study, Regulating for Resilience in an Earthquake Vulnerable City: The Wellington case, has found the law is not always clear, which can adversely affect recovery after a major disaster.

Their QuakeCoRE-funded project, Addressing Wellington Multi-story Existing Buildings – Regulatory Solutions for Addressing Earthquake Vulnerable Commercial Buildings, asks: How do we regulate to make Wellington more resilient? After beginning with engineering, the interdisciplinary project has moved on to social sciences and now law.

“People are not always aware of the rules and vulnerability of their buildings. They think that by signing a lease, they are signing up to a ‘safe’ building. Unfortunately, when buildings are assessed this doesn’t always include their non-structural elements, such as windows and décor.”

Dr Collins’ research focuses on problems for commercial tenants and landlords after quakes, especially involving the central business district and the use of cordons.

“How do we cordon the central business district in a way that will keep Wellington accessible and operational? What powers are required to do that and what happens when a state of emergency lapses?” are some questions she addresses.

The researchers say some legal issues that need further consideration concern contracts, insurance, property, employment, education, crime and human rights.

Dr Collins and Professor Hopkins hope to avoid, minimise or mitigate legal issues by understanding the interconnected issues now and preparing our law so that it can provide efficient and effective solutions if Wellington suffers a major earthquake.
A team including disaster resilience experts from UC is improving how residents respond to future tsunami warnings in Matuku-takotako Sumner.

"Tsunamis are a hazard for many Canterbury coastal suburbs. For many communities, a tsunami could inundate where they live, so they need to be prepared to evacuate," Thomas Wilson, Associate Professor in Disaster Risk and Resilience at UC, says.

The research, in partnership with Christchurch City Council, Te Rākau Whakamarumaru | Civil Defence Emergency Management, Te Kaunihera Taiao ki Waitaha | Environment Canterbury, Te Pū Ao | GNS Science and Te Kunenga ki Pūrehuroa | Massey University, with funding from the national Natural Hazard Research Platform, uses state-of-the-art computer models to estimate how people will evacuate from their homes, workplaces and even the beach.

“We need to consider how people interact with the terrain and each other, potential delays caused by congestion, steep or rough ground and narrow pathways,” Associate Professor Wilson says.

The team used lessons from the Kaikōura earthquake tsunami and the Ōtautahi Christchurch earthquakes to predict how 5,000 Matuku-takotako Sumner residents could evacuate safely in the event of tsunami warning.

The Matuku-takotako Sumner community gave feedback about the modelling at several workshops. UC’s research contributes to practical solutions in the community, and projects such as the Matuku-takotako Sumner tsunami evacuation modelling also give UC students valuable experience for future leadership roles in emergency management locally and nationally.
Octopus wrestling and short fictions: Frankie McMillan’s new collection

Award-winning writer Frankie McMillan’s new collection, The Father of Octopus Wrestling, and other small fictions, traverses exciting new terrain between prose poetry and short fiction, delivering stories that are darkly comic, dynamic and surreal.

Steeped in human vulnerability and eccentricity, her eagerly awaited fourth book was launched on 31 August, published by Canterbury University Press.

“Every story is like a sky rocket we haven’t seen before – flaring and sparkling in unexpected ways,” award-winning author Lloyd Jones said of the latest collection.

Dubbed Aotearoa New Zealand’s ‘maestro of flash fiction’ by renowned short story writer Owen Marshall for her previous collection, My Mother and the Hungarians, and other small fictions, McMillan is recognised internationally for her mastery of the increasingly popular flash fiction genre.

McMillan won the New Zealand Flash Fiction Award in 2013 and 2015. Her poems were selected for Best New Zealand Poems 2012 and 2015 (International Institute of Modern Letters).

The title story was inspired by a Wikipedia entry about octopus wrestling.

“I was intrigued to read of a man named O’Rourke who caught octopuses in the late 1940s, using his body as live bait, and was dubbed the ‘father of octopus wrestling’ by American writer H. Allen Smith,” McMillan says.

The Father of Octopus Wrestling is an artisan production, designed and printed at Ilam Press (Te Kura Kōwaiwai | School of Fine Arts at UC) published by Canterbury University Press with support from from Toi Aotearoa | Creative New Zealand.

Dame Ngaio Marsh’s Hamlet script returns to UC

Dame Ngaio Marsh’s fast-paced, successful wartime production script of Hamlet has been published for the first time, along with the original musical score and a selection of archival photographs, in a new Canterbury University Press book.

Dame Ngaio (1895–1982) was a distinguished UC alumna, one of the 20th century’s greatest crime writers and a gifted Shakespearean director. Hamlet was her first play.

UC Master’s of English student Polly Hoskins discovered the script in the Alexander Turnbull Library in Te Whanganui-a-Tara Wellington while researching her honours thesis on Aotearoa New Zealand’s women writers. She was struck by Dame Ngaio’s adept editing, detailed illustrations and the production’s relevance to wartime audiences.

“Usually all that’s left of a play is a few reviews, so I think it’s really special to have the script preserved and to be able to now share it with a wider audience,” Hoskins says.

Hoskins spent her summer cross-referencing Dame Ngaio’s script with a full copy of Hamlet.

She uncovered more context for Dame Ngaio’s Hamlet production through archived copies of Canta – the student magazine of Te Rōpū Ākonga o UC | University of Canterbury Students’ Association (UCSA) – in UC’s Te Puna Rakahau o Macmillan Brown Library.

“There was a lot in Canta about the role of the University in wartime and the role of the arts. [The Hamlet production] was a huge success and it sold out every night.”

The production featured music by Douglas Lilburn, another distinguished UC alumnus. Hoskins’ father, Robert Hoskins, happens to be an expert on Lilburn’s work and was keen to see the original music published with Dame Ngaio’s script.

The book’s publication coincided with a theatrical celebration of Dame Ngaio at the UCSA’s newly reopened Ngaio Marsh Theatre. DramaSoc presented scenes from Ngaio Marsh’s Hamlet, while members of Te Tira Pūoro | New Zealand Symphony Orchestra played Douglas Lilburn’s original music.

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Head of Music trailblazes on international stage

Head of UC’s Te Kura Puoro | School of Music, Associate Professor Glenda Keam, became the first woman and first New Zealander to be elected President of the International Society for Contemporary Music (ISCM) at this year’s general assembly in Estonia.

“In this new role I have the opportunity to meet a huge range of music leaders and performers,” she says.

“It puts us on the map of contemporary music practices and facilitates connections with composer organisations as well as other universities in such places as Texas and Beijing. It also enables access to expertise and opportunities for New Zealanders and for our students.”

The ISCM, established in Austria in 1922, has 50 member organisations and is virtually ‘a United Nations of the new music world’. Associate Professor Keam will direct ISCM’s World New Music Days 2020 festival in Tāmaki-makaurau Auckland and Ōtautahi Christchurch in April next year.

“The musical world has changed so much over the past 25 years with the digital revolution, but live music is still the most powerful way to experience it,” she says.
Kupe scholars’ goals a step closer

Two Whakatū Nelson-based UC Bachelor of Teaching and Learning (Primary) students received Kupe Māori and Pacific High Achievers scholarships from the Honourable Kelvin Davis, Associate Minister of Education (Māori Education), at an award celebration at Parliament in September.

Stacey Davis (Ngāi Tahu, Ngāti Kahungunu and Ngāti Koata) is a student, mother and rugby coach who is putting in the hard work towards her goals, sustained by her family and her passion for te ao Māori.

“I chose to be a teacher to make a difference for all tamariki,” she says. “I am passionate about creating change and developing teaching and learning to be inclusive for all tamariki. My main goal is to become a principal of a school and complete any qualification to help me achieve this goal.”

Salome Fa’aso’o, Samoan and a mother of two, is enthusiastic about cultural diversity in education. “I encourage more Pasifika and Māori people to take up teaching as a career,” she says. “I think it is important that young Pasifika and Māori children see teachers who resemble their own cultures; who can relate to them; and who believe they have no limit on their potential.

“I have seen great changes over my time in schools over the last three years that show how education is shifting, and Māori and Pasifika knowledge is essential to making these great shifts.”

The 30 Akona a Aotearoa | TeachNZ Kupe Scholars – chosen for their integrity, intellect, enthusiasm and excellent leadership potential – receive national recognition, course fees, a $15,000 study allowance and mentoring.

‘I think it is important that young Pasifika and Māori children see teachers who resemble their own cultures; who can relate to them; and who believe they have no limit on their potential.’
UC launches new Youth and Community Leadership degree

A unique new degree at UC will inspire future leaders in our community, providing them with vital skills to create positive change.

Offered by UC’s Te Rāngai Ako me te Hauora | College of Education, Health & Human Development from 2020, the Bachelor of Youth and Community Leadership (BYCL) builds on UC’s international reputation for social action.

UC’s Te Hunga Tūao | Student Volunteer Army (SVA) is the most visible example of student leadership, having gained international acclaim for determined and inspiring work in the Otautahi Christchurch community following the Waitaha Canterbury earthquakes.

“The SVA have demonstrated some amazing, transferable skills including communication, critical thinking, problem-solving and teamwork,” Associate Professor Billy Osteen says.

The SVA inspired Associate Professor Osteen’s course, CHCH101 Strengthening Communities through Social Innovation, which is the keystone of the new degree.

Leadership futurist and Director of Think Beyond, an organisation focused on future leadership trends and strategic thinking, Dr Cheryl Doig, says the BYCL is a welcome development.

“This exciting new degree provides a real connection to the skills and competencies needed to thrive in the future. The agility to respond to change, to behave ethically and to contribute globally are critical in an increasingly complex world,” she says.

“The BYCL models an entrepreneurial approach to learning and stands out as a modern qualification that lives and breathes agility, collaboration and connection.”

UC will also offer the Certificate in Youth and Community Leadership, available on-campus or by distance study.

The new qualifications should attract Māori and Pasifika, youth or other cultural leaders, social and political activists, and social entrepreneurs.

‘The agility to respond to change, to behave ethically and to contribute globally are critical in an increasingly complex world.’
UC investing $2.6m in cutting-edge research

UC is investing $2.6m in cutting-edge equipment for biomedicine, engineering, drug design and nanotechnology research.

Deputy Vice-Chancellor | Tumu Tuarua

Professor Ian Wright says the new specialist equipment sends a strong signal that: “UC has come through its recovery and is actively rebuilding its research profile.

“It will provide a national and international competitive edge in training PhD students and enable more success in capturing research funding. These are the first major investments as part of our new strategy, backing fundamental and applied research into structural biology and new drug discovery, protein science and structural biology, and nanostructure engineering. It’s a tangible example of UC investing in the future of Aotearoa New Zealand and the world."

UC’s $2.6m research investment will fund:

• A Two-photon polymerization-based nanoscale 3D printer for UC’s Nanofabrication Facility (the first in Aotearoa New Zealand, and only one of a few worldwide).

• A native mass spectrometer (another Aotearoa New Zealand-first) for which UC recruited an expert in the technique - Dr Timothy Allison from Oxford University.

• A Biomolecular Nuclear Magnetic Resonance (NMR) probe, the JEOL triple-resonance helium cryoprobe is an add-on to the existing spectrometer in Physical and Chemical Sciences, which will bring new capability to measure high-resolution data on medically important targets such as proteins, DNA, and protein-drug interactions.

New Zealand Post has celebrated the achievements of four UC scientific alumni and staff, featuring them on a series of postage stamps dedicated to ‘New Zealand space pioneers’.

Professor Beatrice Tinsley, Sir William Pickering, Alan Gilmore and Pamela Kilmartin were or are all considered leaders in their fields. Other astronomers in the series are Charles Gifford and Albert Jones, OBE. The space pioneer stamps are sprinkled with stardust collected from a meteorite found in Morocco and, together, form a rocket-shaped strip.

Alan Gilmore and Pamela Kilmartin

Long-serving staff members of UC Physics and Astronomy, Gilmore and Kilmartin have been observers at UC’s Otehiwai Mount John Observatory, Takapō, since 1980. Fellows of the Royal Astronomical Society of New Zealand, they track Near Earth Objects such as asteroids and comets that may be a long-term threat to Earth. Together they have discovered 41 minor planets, a comet and a nova.

The couple, who have been married for 45 years, work with the country’s second-largest telescope, the one-metre McLellan reflector, which was built in UC’s workshops and installed at the observatory in 1986.

Beatrice Tinsley

‘Queen of the Cosmos’ Beatrice Tinsley was one of the most creative and significant theoreticians in modern astronomy. She graduated from UC with an MSc in Physics with First Class Honours in 1961, before completing her PhD on the evolution of galaxies at the University of Texas.

In 1978, she became Yale’s first female Professor of Astronomy. (See page 24 for more about Beatrice Tinsley.)

Sir William Pickering

Sir William Pickering was a titan of the US space programme, pioneering space exploration as a senior NASA luminary.

Born in 1910 in Te Whanganui-a-Tara Wellington, he studied engineering at UC (then Canterbury College) before moving to the California Institute of Technology (Caltech) to complete his master’s degree followed by a PhD in Physics.

During World War Two, he worked in Caltech’s Jet Propulsion Laboratory. By 1954 he was the lab’s director and he remained there for 22 years.

In later life, Aotearoa New Zealand awarded him an honorary knighthood and UC presented him with an honorary doctorate in 2003.
Dark Sky Project launches in Takapō

An $11m fully immersive dark sky experience is now open to the public in Takapō (Tekapo). Dark Sky Project, formerly Earth & Sky, has opened the doors to its new 1140sqm building on the Takapō lakefront. The centre will be the departure point for the astro-tourism business’s outdoor, evening stargazing experiences at UC’s Ōtehīwai Mt John Observatory.

"Experiencing a truly dark night sky can inspire a sense of awe and wonder about our place in the universe – this is what motivates us both as researchers and as human beings," says UC astronomer and Director of UC’s Ōtehīwai Mt John Observatory, Associate Professor Karen Pollard.

Dark Sky Project is a joint venture between Ngāi Tahu Tourism and co-founders Graeme Murray and Hide Ozawa.
Since the inaugural address at the founding of the Canterbury Collegiate Union in 1872, this university has stood for accessible higher education, service to community, and the encouragement of talent without barriers of distance, wealth, class, gender or ethnicity.

This Strategic Vision is a clear statement that the University continues to stand for these principles and explicitly aims to produce graduates who are engaged with their communities, empowered to act for good and determined to make a difference in the world.

An overarching driver of this strategy is an institutional commitment to engagement. A university that commits itself to engagement undertakes to deploy its expertise and knowledge to advance civic purpose and to foster public good.

UC will continue to support staff who are engaged, empowered and making a difference, with the goal of increasing purposeful academic efforts to make a difference regionally and in the world. UC supports academic staff taking the role of critic and conscience of society and an active role in shaping Aotearoa New Zealand society.

The University affirms its identity as a medium-sized, research-intensive, comprehensive university. It strives to deliver excellent, research-informed education, and creative and innovative research.

In February, UC welcomed Professor Cheryl de la Rey as the new Tumu Whakarae | Vice-Chancellor. Under her leadership, consultation with Council, staff, students, industry, community, schools and stakeholders led to a review of the academic strategy, which ultimately led to a broader strategic review.

UC has had to embark on an extraordinary journey of recovery. Now we are poised to focus wholeheartedly on our academic mission and ensure we set the course for our long-term future in a twenty-first century world that is challenging, dynamic and complex.

The UC Strategy will guide UC’s engagement with students, staff and the community over the next 10 years, and sets a clear direction for the core functions of education, research and people.
Tangata Tū, Tangata Ora
Engaged, empowered, making a difference

Excellence
building our future on the bedrock of excellence

Relevance
responding to a changing world

Impact
making a difference locally & globally

Kotahitanga
working as one university

Ethos

Sustainability

Research
Impact in a Changing World

Education
Accessible, Flexible, Future Focused

People
Nurturing Staff, Thriving Students

Engagement

Internationalisation

Efficacy

Accessible, Flexible, Future Focused
Award-winning research paper links birthdate with NCEA results

The 2019 Tatauranga Aotearoa | Stats NZ Prize for a paper with “the best use of official statistics” was awarded to UC Associate Professor Andrea Menclova and PhD student Asaad Ali from UC’s Te Kura Umanga | School of Business. Their research concluded that the timing of a child’s fifth birthday, and when they typically first start school, may impact on their later results for the National Certificate of Educational Achievement (NCEA) and University Entrance (UE).

The paper, “Returns to Initial Years of Formal Education: How Birthdate Affects Later Educational Outcomes”, found that date of birth affects the amount of time spent in primary school and may further impact educational outcomes.

Using confidentialised microdata from a Tatauranga Aotearoa | Stats NZ data lab, the researchers found students with an additional month of early schooling are on average 5% more likely to meet UE, when all other aspects are equal.

UC PhD student Asaad Ali and Associate Professor Andrea Menclova found that an additional month of early schooling makes students on average 5% more likely to meet University Entrance.

Associate Professor Menclova says, “controlling for demographic and socio-economic characteristics, we found that an additional month spent in Years 0/1 increases the probability of achieving NCEA level 1 by 2%, NCEA level 2 by 4%, NCEA level 3 by 6% and UE by 5%.”

The researchers were awarded the prize at the 60th Annual Conference of the New Zealand Association of Economists in July.
UC improves QS ranking

UC continues to improve its international position, rising four places to 227th in this year’s QS World University Rankings and well up from UC’s 242nd ranking in 2014.

Tumu Whakarae | Vice-Chancellor Professor Cheryl de la Rey welcomes the result, which comes as UC emerges from an intense $1.2 billion rebuilding phase.

“The upward trend is testimony that UC is firmly focused on excellence and impact in its core academic mission,” she says.

Key findings:
• UC earned a global rank of 227th.
• International Faculty Ratio is UC’s highest-ranked indicator, scoring 100 and a corresponding global rank of 54.
• Employers continue to value UC graduates highly, ranking the University 210th in the world, up 59 places.

Global higher education consultancy QS Quacquarelli Symonds produces the rankings for the world’s top 1,000 universities.

UC Business School among 1% global elite with Triple Crown accreditation

Te Kura Umanga | School of Business achieved EFMD Quality Improvement System (EQUIS) accreditation this year. EQUIS accreditation benchmarks against 10 international standards: governance, programmes, students, faculty, research, internationalisation, ethics, responsibility, sustainability, and engagement with the world of practice.

“Te Kura Umanga UC School of Business has used the framework of EQUIS accreditation to strengthen its international focus, to build meaningful connections with business and community organisations, and to embed ethics and sustainability throughout its operations,” says Professor Sonia Mazey, Amorangi Umanga me te Ture | Pro-Vice-Chancellor Business and Law.

This transformation saw the move from a regional focus to an internationally recognised Business School. The school produces high-calibre graduates prepared for a global workforce.

“Achieving EQUIS accreditation, and subsequently the Triple Crown of business school accreditation, acknowledges the international calibre of our teaching and research as well as the high quality of our staff and students,” says Professor Mazey.

With Triple Crown accreditation, UC joins an elite group of the top 1% of business schools in the world.

The UC Business School Trading Room simulates a real-world financial trading environment, providing business and finance students with experiential learning and skills in fund management.
How does a university walk the talk of building a sustainable future?

UC is at the cutting edge of climate change research. Like all universities, however, it faces a paradox: its research finds solutions to the climate crisis, while contributing to it through consuming energy.

Before the earthquakes, UC became the first university in the southern hemisphere to monitor its carbon emissions using the Certified Emissions Measurement and Reduction Scheme (CEMARS) tool. This showed that approximately 50% of our carbon emissions come from heating buildings through burning coal. (Accounting for the other half are air travel (30%) and a combination of other factors such as vehicles, waste to landfill, and accommodation.)

Among the more than 100 buildings over UC’s 87-hectare campuses, some are currently at a level unsuited to ground-source heat pumps as we have used in Haere-Roa. More remediation is needed to achieve our goal of cutting our coal-based carbon footprint by 80% by 2023 and becoming carbon-neutral by 2030.

UC has been under extraordinary constraints since the earthquakes, however we are determined to work towards carbon neutrality. We have reduced our total greenhouse gas emissions by a third since 2010 and are on track to make more gains, to the benefit of society at large and ultimately the world.

By Dr Matt Morris, UC Sustainability Advisor

UC is aiming to be carbon net neutral by 2030.
Government supports native planting with new tree restoration role at UC

A project led by UC is one of two Waitaha Canterbury native planting and restoration projects supported by the One Billion Trees (1BT) Fund, through Te Uru Rākau | Forestry New Zealand.

“The projects include a 20-hectare native forest regeneration project on the Banks Peninsula and a Restoration Ambassador role led by the University of Canterbury,” Forestry Minister the Hon Shane Jones said in announcing the initiatives in July.

“Partnership funding of up to $98,875 has enabled the creation of a native forest Restoration Ambassador, led by the University’s Te Kura Ngahere | School of Forestry.

“The aim of the native Restoration Ambassador will be to provide free, independent advice to farmers, community groups and iwi about how to conserve native biodiversity on their land.”

UC Forestry Professor David Norton is the driving force behind the Restoration Ambassador role.

“The Restoration Ambassador will initially focus on areas that have limited availability of expert restoration advice such as Gisborne and East Coast, and on providing this information for Māori landowners,” he says.

“The One Billion Trees programme [provides] a tremendous opportunity for a substantial increase in the amount of native forest being established, but the challenge is to make sure this is done well and contributes to landscape-level biodiversity conservation.”
Canterbury students officially open new home and theatre
After two years of construction, the new building of Te Rōpū Ākonga o Te Whare Wānanga o Waitaha | University of Canterbury Students’ Association (UCSA), Haere-roa, was officially opened in August. Haere-roa is a vibrant hub of student services, social spaces, bars The Foundry and Bentley’s Lounge, an outdoor amphitheatre, and the Ngaio Marsh Theatre.

Its official opening marks an exciting milestone for the UCSA, which has been without a permanent home since the 2011 Waitaha Canterbury earthquake. It also marks the official return of the Ngaio Marsh Theatre, named after famed UC alumna Dame Ngaio Marsh, novelist, playwright and director. The new theatre fills a significant gap in Aotearoa New Zealand’s performing arts scene left by the closure of its 1960s predecessor. UCSA Tumuaki | President Sam Brosnahan says the organisation was eager to bring the theatre back and continue Dame Ngaio’s legacy. The new space includes modern retractable seating, an orchestra pit and impressive audiovisual technology.

“While we were sad to see the old UCSA building go, we had an opportunity to build something amazing in its place for future generations. This new building is a fantastic investment in UC students, but it’s also a great space for the community and for theatre-lovers.”
Beatrice Tinsley opening honouring the UC alumna

Beatrice Tinsley building, the new home of Te Rāngai Pūtaiao | College of Science staff and postgraduate students, was opened on 1 October by Honourable Dr Megan Woods, Minister of Research, Science and Innovation, and Tumu Whakarae | Vice-Chancellor Professor Cheryl de la Rey with members of Beatrice Tinsley’s family in attendance.

The opening was a celebration of science, astronomy and inspirational leaders who make their mark and encourage young people to study STEM subjects. The opening is a significant milestone for the University marking the completion of the UC Science precinct.

The building is named to honour UC alumna Beatrice Tinsley (1941 – 1981), who is known as one of the most creative and significant theoreticians in modern astronomy. She graduated from UC with a Bachelor of Science degree (1961) and Master of Science in Physics with First Class Honours (1963).

Innovative timber technology

The Beatrice Tinsley building pushes the boundaries of multi-storey timber-framed construction in Aotearoa New Zealand.

The patented, timber-framing technology was developed at UC by three Civil and Natural Resources Engineering professors. Called Pres-Lam, it is a post-tensioned seismic, damage resistant system that uses laminated veneer lumber.

The UC-designed technology is now taught to UC engineering students and is being used in tall-timber buildings world-wide.
Minister of Education Chris Hipkins officially opened UC’s award-winning Rehua building in June. Rehua brings Te Rāngai Ako me te Hauora | College of Education, Health and Human Development from the University’s Dovedale campus to the Ilam campus, joined by Te Pokapū Rakahinonga | UC Centre for Entrepreneurship (UCE), and MBA and Business taught master’s programmes from Te Kura Umanga | UC Business School.

Rehua is a milestone in UC’s campus transformation programme of creating purpose-built learning facilities together with informal spaces that encourage community collaboration and cross-disciplinary activities. The building’s outstanding design was recently recognised with two New Zealand Institute of Architects Canterbury branch awards for interior and architecture in the Education Building award category.

Designed to facilitate cultural inclusiveness, Rehua features significant cultural elements, including an exquisitely carved timber ceiling inside the flagship Te Moana-nui-a-Kiwa room and a Pasifika tapa cloth outside it.

“In this building our students are being inspired to reach their highest potential as future educators, health professionals, business entrepreneurs and leaders, and it is essential that we lead the way with excellent research and teaching within stimulating, culturally inclusive spaces,” says UC Tumu Whakarae | Vice-Chancellor Professor Cheryl de la Rey.
Distinguished Professor Geoff Chase, from UC’s Te Rāngai Pūkaha | College of Engineering, is working on world-first insulin sensor technology to enable ‘right now’ measurement for people managing type 2 diabetes.

The new insulin measurement technology will allow doctors and patients to make more informed decisions on treatment immediately, Distinguished Professor Chase says. Currently people can find their blood sugar level using the finger stick test and a glucometer but only a lab can measure insulin.

“What makes point-of-care insulin testing difficult is there is no known chemical reaction to test for,” he says.

Collaborators in this work funded by the National Science Challenge: Science for Technological innovation are Director of UC’s Biomolecular Interaction Centre Dr Volker Nock, Electrical and Computer Engineering postdoctoral fellow Dr Rebecca Soffe and Mechanical Engineering Senior Lecturer Dr Stefanie Gutschmidt. Together they are developing lab-on-a-chip technology using micro-fluidics, specialised bio-receptors, and novel micro-electro-mechanical-system (MEMS) modelling to detect insulin in a sample fluid.

“The fixed volume of the liquid will stick to the microchip, allowing the rest to run off. This changes the mass and thickness of the MEMS array elements, which in turn lets us ‘see’ that mass of insulin by the way it changes the dynamic properties of the MEMS device arrays.”

The current lab processing of a blood sample takes one to three days to provide a result. With this process and delay, the test only helps to initially diagnose type 2 diabetes, not to manage continued care.

“When you don’t know insulin levels, you have to guess. Patients tend to run into problems and will often give up on treatment because the risk of injecting too much insulin is too high,” Distinguished Professor Chase says. “With this sensor, you could know what your insulin level is and safely dose, reducing that risk.”
Community capacity post sheep farming

Intensified dairy farming has affected community capacity in the small Southland town of Mataura, says Dr Sarah Lovell, senior lecturer in Te Rāngai Ako me te Hauora | College of Education, Health and Human Development.

In the eighties and nineties, many farmers shifted away from traditional sheep farming. Mutton-chains began closing, affecting most of the 225 meat processing workers in a town of 1,500 residents.

The result was job transfers, retirement or unemployment for most of the self-described ‘muttonhead’ participants in the qualitative part of Dr Lovell’s study.

“We surveyed randomly identified people from the town and compared these findings with survey results from people living in similar-sized towns. We wanted to know whether the changes in community capacity we were seeing were isolated to Mataura,” Dr Lovell says.

“Our findings suggest that a small town’s perceptions of community capacity may be much more sensitive to economic change than previously recognised. Towns recovering from economic setbacks may require additional outside support.”

In her research, Dr Sarah Lovell observes how major shifts in food production can have a profound impact on community capacity.

Biodegradable coating to help achieve food security

A new biodegradable coating being developed by UC Biotechnology Associate Professor David Leung can help achieve food security in an environmentally friendly, consumer-conscious way.

Associate Professor Leung is working on a nontoxic, biodegradable coating to protect edible plants against diseases, pests and environmental hazards, including climate change effects.

The research could prove vital in protecting plant food without compromising consumer health. Because the coating is biodegradable, it would also provide an environmentally sustainable solution and avoid the negative impacts of agrochemicals.

In addition, the coating is nontoxic, which Associate Professor Leung says is key to protecting the people consuming the end product.

“There is a demand for environmentally sustainable ways of doing things and, in food production, it is important because we cannot continue using these chemicals without causing major, long-term harm to the planet.”

Producing a safe solution

If toxic chemicals are used to protect crops over a long period, they destroy the surrounding elements that support the plant’s life process. Furthermore, toxic residues can accumulate in the local environment, causing long-term damage to the ecosystem.

Many fruits and vegetables are protected using chemicals such as copper sulfate. A variety of agrochemicals is used every day to harvest nearly all of the world’s commercial produce.

“Right now, we have to use these undesirable substances or we simply would not be able to harvest enough food to support the world’s needs. This is why we need to have another option – a safer and more sustainable option,” Associate Professor Leung says.

“This biodegradable coating can also be adapted to solve post-harvest challenges, including storage and shipping.

“Food spoilage is a serious problem and this could potentially be used to combat that. This is another real-world impact we are thinking about.”
New agile MBA targets leaders of the 4th Industrial Revolution

UC has launched a new Master of Business Administration (MBA) Programme delivering a course that is more relevant to organisations, focused on emerging technologies, innovations and business needs beyond economic drivers.

UC MBA Director, Associate Professor Chris Vas says traditional business models will fail in the era of the Fourth Industrial Revolution and UC’s radically different MBA will develop agile and innovative leaders with a focus on purpose, impact and growth.

There are eight new courses in the 2020 programme, which offers more flexible online study options and weekend block courses making the programme more attractive to the 98% of executive learners who work full-time while completing their MBA.

The Programme is seeing early success with the signing of a three year MoU with Malaysian Government public sector agency JPA Sabah to train public sector officers in these areas.

The UC MBA Programme was launched on 22nd October 2019 with a panel discussion event; Leadership in the Digital World. Presenters include Seequent Chief of Operations, Graham Grant; UC Vice-Chancellor Professor Cheryl de la Rey; ChristchurchNZ CEO Joanna Norris; Brannigans Human Capital Partner, Nick Carter; and UC MBA Programme Director, Associate Professor Chris Vas.

A golden celebration for UC Journalism

UC celebrated 50 years of postgraduate journalism excellence in early September, with graduates from all over the world congregating on campus to celebrate the milestone.

The once-in-a-lifetime reunion saw former classmates and tutors of the University’s Journalism programme invited to Haere-roa, the new UC Students’ Association building, for a cocktail event with guest speaker, GradDipJ alumna and renowned broadcaster, Kim Hill.
UC welcomes Golden Graduates back to campus

The 2019 Golden Graduates afternoon tea was held on Wednesday 25 September in the UCSA’s newly opened Haere-roa building.

Over 150 people attended this year’s biennial event for alumni and friends of UC over the age of 65.

Golden Graduates is a wonderful opportunity for attendees to reunite with old friends, reminisce about their time at the University and see our new facilities, including the new Ngaio Marsh Theatre in Haere-roa.

Professor Jan Evans-Freeman, Amorangi Pūkaha | Pro-Vice-Chancellor Engineering, welcomed guests on behalf of the University and provided a brief update on recent developments across UC.

We were honoured to have visiting Erskine Fellow and physicist Sir Colin Humphreys as our guest speaker at the event. Sir Colin is a Director of Research at the University of Cambridge, a Fellow of Selwyn College, Cambridge and Professor of Experimental Physics at the Royal Institution in London.

UC recognised as IRD-approved research and development provider

UC is one of the first institutions recognised by Te Tari Taake | Inland Revenue (IRD) as an approved research provider. The recent research and development (R&D) tax incentive law makes it easier for qualifying businesses to obtain a 15% tax refund on their R&D expenditure per annum.

Tumu Tuarua | Deputy Vice-Chancellor Professor Ian Wright is pleased UC is among the first institutes in the country to be approved by IRD.

“Recognition of UC as an accredited research provider by IRD means businesses can work with us secure in the knowledge that not only will the R&D services they receive be professional and fit for purpose, they will also be supported by appropriate and accurate invoicing for claiming the tax incentive,” he says.

“This is a further example of the ways in which UC strives to build and enhance a strong culture of collaboration with business and industry.”

Working with UC on R&D is especially favourable for businesses that spend less than $50,000 per annum because, to benefit from the incentive, businesses must work with an approved research provider, Professor Wright says.

To find out more about working with UC on R&D projects, please email: commercial@canterbury.ac.nz
Gemma McCaw announces new UC scholarship

Chalky Carr Trust Patron, Gemma McCaw, announced the inaugural recipient of the Chalky Carr Trust Scholarship, established with UC to support those impacted directly or indirectly by cancer.

UC first-year Bachelor of Criminal Justice student Mario Williams was presented with the scholarship at an official ceremony attended by family and friends of Chalky Carr. Mario lost his mother in 2012 and was diagnosed with cancer in 2017.

“Mario is a fine young man who richly deserves this award. He has been described as a trooper, uncomplaining, valued highly at Shirley Boys’ High School even before he was diagnosed with cancer,” Chalky Carr Trust Board Chairman Brett Gamble says.

“He wants to learn, wants to help everyone, including supporting team mates on trips away even when too unwell to play sport himself.”

Chalky Carr, originally from England, was a hero who served as a Royal Marine Commando and Te Taua Moana o Aotearoa Royal New Zealand Navy officer, and was awarded the New Zealand Bravery Medal for his actions saving lives following the February 2011 quake.

Passionate about rugby, he coached young players at the Christchurch Rugby Football Club and was working as the All Blacks Logistics Manager when he was diagnosed with terminal cancer in 2016.

With the help of family and friends, Chalky set up the Chalky Carr Trust. His family and friends ask that he is remembered with a light heart for he was a fabulous, loving, funny man who continues to help others through the Trust he founded.

The scholarship will be offered in perpetuity to a minimum of one UC student each year at a value of $10,000.

The future of science and engineering

In early July, over 50 science, technology, engineering and maths (STEM) enthusiasts from the Children’s University were welcomed to UC’s Ilam campus with a mihi whakatau to learn about volcanoes, simulate tiny earthquakes and learn what it’s like to do research in Antarctica.
UC Alumni Family Day  
Saturday 15 February 2020  
We invite all UC alumni and friends to a Family Day picnic and BBQ at Ilam Homestead. Join fellow UC alumni and staff, bring your friends, family and a picnic, and we will provide a BBQ and some entertainment!

School of Forestry 50th Anniversary  
Weekend of 16–18 April 2020  
The School of Forestry will celebrate 50 years during a celebration in April 2020. The event will be held at the University of Canterbury and will include conference/education sessions and a social programme including class reunions, a conference dinner and other events for alumni and staff. Email forestry50@canterbury.ac.nz for more information.

Mt John Alumni Weekend with the Stars  
Weekend of 30–31 May 2020  
UC alumni are invited to join us at our biannual Weekend with the Stars in Takapō (Tekapo). Activities include special tours of the University of Canterbury Mt John Observatory facilities, astronomy lectures, a shared dinner, star gazing (weather permitting), and a guided nature walk around the Mt John summit.  
For more information on UC Alumni events and to register, visit www.canterbury.ac.nz/alumni, email alumni@canterbury.ac.nz, or phone 03 369 3839.

Free online Wills for UC Staff, Friends and Family  
Did you know that less than half of adults in Aotearoa New Zealand have a Will?  
Writing a Will shows you’re thinking long term about your family and loved ones. Te Tūāpapa Hononga | UC Foundation recognises the importance of Wills and has partnered with Justly.co.nz to provide a FREE Will-writing service for UC Staff, Alumni, Friends and Family.  
To get started on your free Will, which you can write from the comfort of your home, go to: www.canterbury.ac.nz/bequest and select ‘Online Will-writing service’.

Keep in touch  
News – for a regular email update on the latest UC news email communications@canterbury.ac.nz  
UC alumni and friends – Keep your details up to date online at www.canterbury.ac.nz/alumni/keep-in-touch
Working with People.
Leading with Heart.

Arihia Bennett has been CEO of Te Rūnanga o Ngāi Tahu since 2012. In her role she leads a large team of staff who are committed to improving the lives of 58,000 iwi members. Arihia reports to a board of 18. Highly respected as a leader, it was Arihia’s background in social work that paved the way for success in such a relationship-based role.

“Whether you’re working with children, families, staff or other companies, the essence of what you’re doing is growing people’s sense of self-determination.”

Arihia Bennett
CEO, Te Rūnanga o Ngāi Tahu

Class of 1988

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www.canterbury.ac.nz/alumni