

2022

Sustainability Report



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

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UOW Sustainability Report 2022




This report outlines many of the University of Wollongong's (UOW) activities and initiatives that have contributed to the UN's Sustainable Development Goals (SDGs) in 2022. This publication also showcases who we are and our commitment to sustainability via a selection of our leading initiatives, research and partnerships.

UOW Strategic Plan

UOW is a leading global university, inspiring a better future through education, research and partnership. We are anchored by our core values of excellence, recognition, diversity, empowerment and openness.

We create change that matters through building partnerships based on trust, focusing on global ideas and networks.

Three goals underpin our 2020-2025 Strategic Plan:

-  Empowering our students for their futures
-  Creating knowledge for a better world
-  Making a difference for our communities

Our Strategic Plan is available to read at uow.info/2025

Acknowledgement of Country

We acknowledge that Country for Aboriginal peoples is an interconnected set of ancient and sophisticated relationships. UOW spreads across many interrelated Aboriginal Countries that are bound by this sacred landscape, and intimate relationship with that landscape since creation. From Sydney to the Southern Highlands, to the South Coast. From fresh water to bitter water to salt. From city to urban to rural. UOW acknowledges the custodianship of the Aboriginal peoples of this place and space that has kept alive the relationships between all living things. The University acknowledges the devastating impact of colonisation on our campuses' footprint and commit ourselves to truth-telling, healing and education.

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I am so proud to be the public face for the Sustainable Futures Committee here at the University of Wollongong.

I am also so proud to be part of a university that puts sustainability at the heart of so much that we do.

One of the great advantages of being a relatively young university is that we are fleet of foot, able to pivot into the future with an ease that constantly amazes me.

I see benefits of this all the time, and I hope that this spirit of youthful innovation combined with serious scholarship shines through in the examples you are about to read.

Molecular Horizons was a dream just a short time ago, but already the investment is paying off. You'll read about advances in some of the world's most pressing health issues - cancer treatment, antibiotics, Alzheimer's and Parkinson's disease.

Or there's the work at ARC Centre of Excellence for Electromaterial Science, where researchers are reimagining what is possible by creating new materials, and new ways of using those materials, that is almost beyond imagination.

Then there's the global fight for our oceans and ocean resources that is based at the Australian National Centre for Ocean Resources and Security.

In a world that is so often dominated by predictions of a bleak future, the researchers featured in the publication offer a counter story – a fierce flame of hope that carries the message:

We must do better, and we can do better.

Professor Patricia Davidson PhD, MEd, RN
Vice-Chancellor and President

The University of Wollongong embraces the United Nations Sustainable Development Goals as the framework for guiding our journey to the future and giving us purpose.

As you read this report, you will see how our researchers, graduates, teachers and all our staff are working positively and collaboratively for a better future for all of us.

As a relatively young university, we are harnessing our agility to tackle the emerging issues and work towards solution in partnership with community, businesses, governments, and colleagues nationally and internationally.

You'll read here about ways in which the world is changed from the smallest molecule to the largest ocean, from the most local impact to the truly global.

We have committed to making our campus carbon neutral no later than 2030 and we have embarked on this journey with vigour. This is exemplified by our research and practical application of smart grids fit for renewable energy, protecting our oceans from plastics pollution whether that's in Wollongong harbour or by engaging with the United Nations.

We recognise the need for urgency in all our actions, our research, our teaching. Across the areas of health, education, inclusion, community, energy, industry, and (of course) climate – we have no time to lose.

What you will read here is the combined endeavour of our people to advance our great university along the road to a planet positive future. I am inspired and humbled by the work of my colleagues and our collective focus to continue to improve. We are not there yet, and we are not letting up.

Professor Tim McCarthy
Chair, Sustainable Futures Committee

Global highlights



=61st
THE Impact
Ranking

2023



85th
Sustainability in QS
World University
Rankings

2023



5+ Stars
QS Stars Ratings

2022

THE Impact Rankings 2023

TOP 50 GLOBALLY

5th
SDG8: Decent Work and
Economic Growth



28th
SDG6: Clean Water
and Sanitation



=41st
SDG13: Climate Action



TOP 100 GLOBALLY

60th
SDG10: Reduced
Inequalities



64th
SDG9: Industry, Innovation
and Infrastructure



=66th
SDG14:
Life Below Water



67th
SDG11: Sustainable Cities
and Communities



70th
SDG7: Affordable and
Clean Energy



82nd
SDG12: Responsible
Consumption and Production



=88th
SDG16: Peace, Justice and
Strong Institutions



=91st
SDG5:
Gender Equality



Climate & environmental sustainability

Our researchers provide global leadership across a wide range of urgent environmental and sustainability issues. We have a strong record in engaging universities, industry partners and government organisations nationally and across the globe. Our University has high-profile expertise across environmental science, sustainable development, marine resources management, and bushfire risk management.

28th

SDG6: Clean Water and Sanitation

THE Impact Rankings 2023

=41st

SDG13: Climate Action

THE Impact Rankings 2023

=66th

Sustainability – Environmental

(QS World University Rankings 2023)

=66th

SDG 14: Life Below Water

THE Impact Rankings 2023

67th

SDG 11: Sustainable Cities and Communities

THE Impact Rankings 2023



Sustainability in numbers



WATER CONSUMPTION

3.2 ML
megalitres of onsite rainwater storage in 2022²

35%
reduction of mains water consumption since 2019¹



PAPER CONSUMPTION

79%
reduction in office paper purchased since 2019

99%
paper consumed in 2022 was carbon neutral



SUSTAINABLE TRANSPORT

21%
commute to UOW via active transport in 2021^{1,3}

19%
commute to UOW via public transport in 2021^{1,3}

3
shuttle bus services including use of 2 hybrid buses in 2022

14
secure bike lock up and end of trip facilities in 2022



WASTE MANAGEMENT

49.7%
of waste is diverted from landfill¹

248,064 kg
of organics (food and vegetation) collected and processed for composting or onsite mulch¹



CAMPUS ENVIRONMENT

53,625
natives have been planted at Wollongong and Innovation campus since 2017.

1. Wollongong campus only

2. Includes all UOW, UOW Pulse and UOW Global Enterprises, including Wollongong campus, Innovation Campus, student accommodation, Shoalhaven campus, Bega campus and Graduate Medicine properties.

3. The mode commuters travelled to campus was assessed in 2021 via a headcount survey.



RESEARCH

Sustainable Buildings Research Centre

The Sustainable Buildings Research Centre is focused on making buildings more liveable, sustainable, cost-effective and kinder to our environment.

Our vision is to enable every Australian to live comfortably, sustainably and well through pioneering research.

This means partnering with industry to create buildings that are cradle to cradle, net zero and use restorative products and services to create a more sustainable society.

The Centre is pioneering new approaches to building design, construction and retrofitting techniques to create more effective places to live and work – and we practise what we preach.

We are housed in the first Australian building to gain six stars from Green Building Council Australia for sustainable design, construction and operation.

We are also the first organisation in Australia to achieve a Living Building Challenge Certification.

This is an international standard of sustainability encompassing all aspects of a building project.



RESEARCH

Centre for Atmospheric Chemistry

Over more than a quarter of a century, we have established the most intensive atmospheric composition and chemistry research and training program in Australian universities.

Our research collaborates with Australian and international atmospheric science communities to advance understanding of atmospheric trace gas and aerosol chemistry, atmosphere/biosphere exchange of trace gases, and long-term changes in atmospheric composition and chemistry.

Our scales go from local to global.

Whether the emissions are from agriculture, fire or aerosols, we provide modelling and analysis that informs how our atmosphere is changing.

The Centre's historical strength is in atmospheric trace gas measurements, and in developing and using novel optical techniques. With our industry and government partners, we developed a novel, terrestrial instrument to autonomously measure carbon dioxide and other greenhouse gases in the atmosphere.

For example, the Greenhouse Gas Monitor project was developed under the Australian Space Research Program.



RESEARCH

Centre for Sustainable Ecosystems Solutions

The Centre for Sustainable Ecosystem Solutions uses a cross-disciplinary focus to create a collaborative research environment targeted at ecosystem management.

We aim to be an internationally significant centre for innovative research, focusing on how threats affect ecosystems.

We report on the extent and effects of invasive species, the changes to species and ecosystems by disturbances, the effects of climate change on plants and animals, studying how biodiversity responds to climate change, and the importance of human inputs.

We explore innovative solutions to sustainable ecosystems using techniques such as drone technology, thermal imaging and ground, air and satellite remote sensing.

For example, our work in Antarctica looks at how subantarctic plants respond to changes in temperature.

We use a range of molecular and physiological techniques to predict how terrestrial biodiversity in Antarctica will change as a result of climate change.

Some plants are likely to be more resilient to temperature increases than others.



CASE STUDY

Historic UN agreement to fight plastic pollution

The flow of plastics into our oceans is predicted to double by 2040 unless global action can be agreed upon to curb the environmental scourge.

Representatives from 173 countries met in 2021 and agreed on an historic UN resolution to start negotiations for a legally binding agreement to end plastic pollution.

Dr Karen Raubenheimer, a senior lecturer at the Australian National Centre for Ocean Resources and Security (ANCORS) at UOW, was instrumental in drafting the resolution.

She worked on a number of studies that were considered in the formulation of the resolution and will now work on formulating the agreement due to be implemented by the end of 2024.

“The next step is obviously the design of such an agreement,” she said.

“What will the global goals and targets be, and on what indicators must countries report to track progress towards these targets?”





CASE STUDY

Using AI to recognise koalas – one bellow at a time

When it comes to detecting and quantifying koala populations, there is no time to waste.

The difficulty is counting these endangered, shy and nocturnal creatures without disturbing their habitat, and quickly enough that the data is not immediately out of date.

Wize Dynamics, a company formed by UOW graduates Bilal Arshad and Elliott Pilton, has completed a study into the development and suitability of artificial intelligence to identify individual koalas from audio recordings.

The new technique recorded koala bellows in about 20 studies along the Australian East Coast.

Each bellow can be matched to an individual animal with 94 per cent accuracy.



CASE STUDY

Raising awareness about the Great Southern Reef

While the Great Barrier Reef is world famous, most people have never heard of the Great Southern Reef.

The series of interconnected rocky reefs hugs the southern part of temperate Australia.

It houses kelp forests in the shallows and what scientists term 'Marine Animal Forests' in the deeper areas made up of sponges, soft corals, sea fans and other colourful biota, including fish.

These environments provide important fish habitat and other benefits important for ocean health.

The Centre for Sustainable Ecosystem Solutions at UOW and artist Karla Hayes joined forces to deliver two murals to raise awareness about the reef.

The murals were made possible by a NSW Ports Community Grant.



CASE STUDY

All washed up – microplastics on our beaches

New research from the United States shows that 136,000 tons of microplastics are ejected from the ocean each year.

These minute particles defined as less than 5mm in length, end up in the air we breathe, the water we drink and even in human placentas.

Students from across UOW have been participating in a series of environmental events organised by the School of Earth, Atmospheric and Life Sciences (SEALS).

The events are run in collaboration with the Australian Microplastics Assessment Project (AUSMAP), a survey of Australian beaches for microplastic pollution.

All students are then invited to continue volunteering with this program or completing their AUSMAP accreditation training to become team leaders.





CASE STUDY

Global Antarctic science partnership

Researchers from UOW have joined a multi-disciplinary taskforce to study environmental changes taking place in the Antarctic.

Securing Antarctica's Environmental Future (SAEF) is an ambitious \$36 million research and training program that will deliver leading Antarctic and Southern Ocean science.

The research program includes over 30 universities, government agencies and private sector partners from Australia, New Zealand, the United States, Europe, the United Kingdom, Chile and South Africa.

A team of more than 125 researchers and students will spend the next seven years working to understand the changes taking place across the Antarctic region—to its climate, environment and biodiversity—and develop innovative ways to forecast, mitigate and manage these changes.



CASE STUDY

Helping people and the planet

Research by economic and social geographer and ARC DECRA Fellow, Chantel Carr, looks at workers in air-conditioning and refrigeration, a few of the many skilled professionals we'll lean on heavily in the coming years and decades.

More frequent extreme weather is creating uncertainty across society. In particular, it raises challenges for the workers required to fix and maintain things. These workers are essential for helping society adapt to climate change but face difficulties such as heat stress and skills shortages.

The study comprised a large industry survey, 70 in-depth interviews, and four focus groups with building contractors and facilities managers. Research identified the need for a strong pipeline of skilled workers. Any workforce shortages could seriously inhibit Australia's capacity to adapt to and mitigate climate change.



Health & wellbeing

Healthier communities

The University has created structures that promote collaboration across a wide range of disciplines.

Health, medical science, material science and social sciences combine with a community-focused approach in important areas such as aged care, mental health, primary health care and tackling antimicrobial resistance.

The common factor is deeply embedded partnerships with industry and communities to create practical solutions to real-world issues.



Top 100

in Nursing

QS World University Ranking, 2023

98.3%

of UOW Medicine graduates in full time employment

2020 – 2022

27.6%

of all UOW graduates in 2022 went into health professions



RESEARCH

Molecular Horizons

None of the global success of Molecular Horizons came by accident.

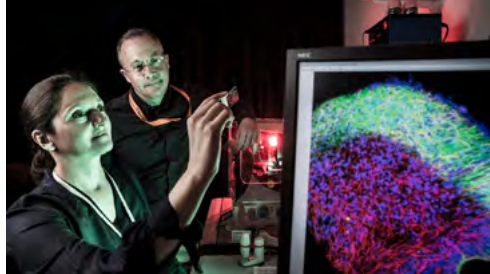
The commitment began with an \$80 million investment in the building itself, which needed to house some of the most advanced pieces of scientific equipment in the world including Transmission Electron Microscopes (TEM).

The instruments are so sensitive that they need to be completely isolated from all forms of vibration and magnetism.

If cancer is to be cured, new classes of antibiotics developed, and Alzheimer's disease reversed it will most likely be biochemists and molecular biologists powering these breakthroughs.

Molecular Horizons is dedicated to illuminating how life works at a molecular level and solving some of the biggest health challenges facing the world.

The facility is the hub of a network of global partnerships tackling a wide range of health issues.



RESEARCH

Intelligent Polymer Research Institute

The Intelligent Polymer Research Institute (IPRI) is a key research strength at UOW.

Researchers translate materials science knowledge into practical, game-changing devices that will have a significant impact in the areas of diagnostics, energy, health and soft robotics.

As a result of partnership with the Australian National Fabrication Facility (ANFF), the Institute is perfectly positioned to build on its global reputation for discoveries in materials science and the implementation of that knowledge in both energy and health.

The Institute fabricates customised bioink formulations that can deliver viable cells for regenerative medicine when the original cells are damaged or destroyed.

We utilise commercially available 3D bioprinting systems to design and develop customised technologies for the clinical challenge at hand.



RESEARCH

Health Impacts Research Centre

The Health Impacts Research Centre undertakes interdisciplinary research to better understand personal and community experiences related to living with chronic conditions.

It informs innovative approaches to the prevention and management of chronic conditions, particularly to local communities.

Underpinning our mission is a strong focus on capacity development of researchers and creating synergies between health researchers from different disciplines across key areas. These range across lifespans from pregnancy, dementia treatment, mental health research and more. Transformational change is achieved by advancing the skills of healthcare educators and students across a range of disciplines including, but not limited to medicine, nursing, exercise science, and nutrition and dietetics.

Researchers have developed resources and co-designed innovative curricula in Indigenous health, medicine, anatomy, biochemistry, nutrition and continued professional development for health professionals.



Honouring the legacy of Professor Justin Yerbury AM

It is with profound sadness that the University of Wollongong shares the news of the passing of Professor Justin Yerbury AM. In recognition of his extraordinary contributions to the fight against MND, UOW has established the Justin Yerbury Chair in Neurodegenerative Diseases. For more information and to donate, visit: uow.info/for-justin

CASE STUDY

Motor neurone disease – a very personal quest

The quest to eradicate motor neurone disease (MND) was both an academic and an intensely personal ambition for Professor Justin Yerbury.

Honoured with a Member of the Order of Australia (AM), Professor Yerbury was recognised for his lifelong commitment and impact by Research Australia in its Awards in November 2022.

Professor Yerbury was an internationally respected leader in MND research who shared his personal story to shine a light on the challenges faced by people living with the disease.

Professor Yerbury’s team has developed several new treatments to potentially treat MND, including new drug combinations and gene therapies aimed at removing and reducing molecules that contribute to MND.

Professor Yerbury explained how his team has made significant strides in therapeutic development research: “We’ve developed therapies that can slow disease progression in the lab. We’re continuing to optimise our therapeutic approach to ensure its safety and effectiveness before we hope to begin moving it towards clinical trials.”

His research has attracted over \$11 million in funding to the fight against MND.





CASE STUDY

Cracking the code of Parkinson’s

Researchers hope that stem cell research into Parkinson’s will bring a cure closer by cracking the code of the disease, one cell at a time.

The study will pinpoint prominent changes within the neurons that degenerate, while investigating how these are impacted by other cell types within the brain.

Scientists from UOW will use cutting-edge analysis techniques to track changes in cells that may be observed early on and used as biomarkers of disease.



CASE STUDY

Stem cells tell a story

Stem cells derived from patients suffering from a rare inherited disorder are helping researchers study how body position and movement are affected.

Friedreich’s ataxia is a rare inherited disorder that causes degeneration of nerve tissue in the spinal cord and the brain, which then affects movement and, over time, other neuronal functions, such as speech.

Currently, there’s no cure for the disorder, which is usually diagnosed between childhood and early adulthood and can significantly shorten a person’s life expectancy.

UOW researchers are studying stem cells derived from patients with the disease to study the progressive neurodegeneration of neurons responsible for body position and movement.



CASE STUDY

Managing multiple sclerosis through diet

What diet is best suited to minimise the symptoms of multiple sclerosis (MS)?

This is the question posed by UOW researcher Associate Professor Yasmine Probst with a grant awarded by MS Australia.

Professor Probst lives with MS and finds the current advice around diet both inconsistent and of poor quality.

Her ambition is to help people living with MS to self-manage their disease safely with progressive changes to their lifestyle.

One of the tools to be developed will be a dietary tracker for people with the disease, using images of food to monitor their diet.





CASE STUDY

Cyclists champion bike-riding

The health benefits of pedal-power received a massive boost when one of the world’s largest cycling events came to Wollongong.

The UCI Road World Championships was the largest international sporting event ever to come to the Illawarra.

Globally, the race is part of the ‘Triple Crown’ of international road cycling, alongside Tour De France and Giro De Italia.

Vice-Chancellor Professor Patricia M. Davidson threw her support behind the event by accepting a role as Wollongong 2022 Ambassador.

The event is part of strong support for sustainable transport at UOW, including a Youth Climate Change Statement, issued by staff and students.



CASE STUDY

Fast-track from lab to clinic

Clinicians and scientists teamed up to form Beyond Science, a program aimed at fast-tracking medical advances.

Focusing on the areas of ear, nose and throat surgery, as well as aims to advance biomedical innovation by improving communication.

It comprises a network of clinicians and scientists, including Distinguished Professor Gordon Wallace and Professor Jeremy Crook from UOW.

Beyond Science will help propel projects along the ideas to industries pipeline and facilitate faster translation of advances into the clinic.



CASE STUDY

Living well with dementia

It has never been more urgent to learn how to create supportive communities for Australians living with dementia.

With more Australians than ever living with the disease, UOW researchers are creating new ways of understanding how best to create communities that support the needs of people.

A grant from Dementia Australia will fund ways to evaluate what works – and what doesn’t – when it comes to creating a community that is supportive and inclusive of people with dementia, their family and carers.

In addition to the work being done across the University to support the development of models of appropriate support and care, UOW leads the Commonwealth Government’s workforce development program through Dementia Training Australia. The \$66m program provides training and support for professional workers and volunteers in aged and dementia care.





CASE STUDY

Labs test new cancer drug formulations

Pre-clinical evaluation of a chemotherapy drug to be used outside a hospital setting marks a new research collaboration.

Researchers from UOW have joined forces with Race Oncology to evaluate new formulations of the drug, Zantrene®.

Race Oncology’s principal scientist is Professor Michael Kelso, a former UOW academic.

The trial will evaluate more patient-friendly ways of administering the drug than in a hospital setting via an intravenous drip.



CASE STUDY

Eat well and move more

The success of a program designed to promote eating and physical activity in children led to a four-year grant extension.

The program allowed UOW researchers at Early Start to study eating and movement in school-age children and newborn to age 5.

Researchers observe children at home, in family day care and in out-of-school environments.

The data is then used to formulate guidance for parents and educators to implement methods most effectively.

Currently, one third of young Australian children’s dietary intake comes from discretionary foods, such as sweet and savoury pastries, crisps, biscuits and processed meats.



CASE STUDY

COVID challenges hit hard

COVID-19 hit the wellbeing of the most vulnerable Australians the hardest.

A national study conducted at UOW showed those with poor social support, difficulty accessing health care, insecure housing and food uncertainty had significantly poorer wellbeing during the pandemic.

The online survey of 1200 people found that about a third experienced housing insecurity during the pandemic.

One of the main economic challenges was the ability for people to pay for housing.

It also showed that food insecurity across Australia during the pandemic was 22 per cent, compared to up to 10 per cent before the pandemic.



CASE STUDY

Better treatment of breast injuries

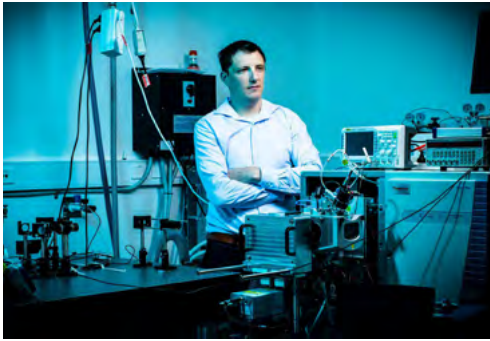
Breast health awareness is promoted to women all over the globe thanks to work at UOW.

Researchers created a global education platform, with free educational resources made by Breast Research Australia (based at UOW) and its partners.

The aim is to recruit, train and mentor Breast Education Leaders from 31 countries and to take this education back to active women and female athletes in their own countries.

Breast injuries can occur during any sport, and there is a need to educate athletes to report these injuries so they can get treated.





CASE STUDY

Making waves in analytical science

The team headed by Dr Shane Ellis at Molecular Horizons is aiming big by focusing small.

His research is based on mass spectrometry imaging to image the distribution of lipids throughout diseased tissues and cells.

This project can shed light on the roles of lipids in ageing and neurological diseases such as Alzheimer's and Parkinson's Disease.

Within a single nerve cell there can be thousands of synapses. The aim is to understand this diversity, and this might influence brain signalling and function.



CASE STUDY

Pedalling for change

Senior Professor Gordon Waitt and Professor Ian Buchanan led a multidisciplinary research team funded by the Australian Research Council (ARC) to undertake a three-year project to look at cycling rates in Australia.

The Pedalling for change: cultural geography for traffic congestion innovation research aims to offer new knowledge about why commuter cycling has failed to increase in Australia when leisure cycling has grown exponentially.

The research team formed a Cycling Dialogue Group with 22 volunteers. Together, they interviewed over 150 actual and aspiring bicycle commuters from Wollongong and Sydney. The research aims to provide ideas and recommendations for council and government implementation towards a more sustainable approach to the modern commute.



Reducing inequalities

60th

SDG 10: Reduced Inequalities
THE Impact Rankings 2023

=91st

SDG 5: Gender Equality
THE Impact Rankings 2023

5 Stars

for Inclusiveness
QS Stars, 2022

UOW aspires to set the standard for inclusiveness, diversity and equity. We welcome – and benefit from – the diversity of our communities within Australia and internationally. We will continue to champion Aboriginal and Torres Strait Islander Reconciliation.

We are a community that's greater than the sum of its parts because each part is supported, nurtured and celebrated.

Whether you are first in your family ever to attend university, part of our international community, gender diverse, living with a disability, or part of our thriving First Nations community – you are valued.

This commitment to inclusion and celebrating difference resonates strongly with students and staff.

It is there in the institutional support programs, structures and scholarships, but it is also there in the daily interactions in the classroom and around campus.

It is in our DNA.

Reducing inequalities in numbers

CREATING OPPORTUNITIES

29.2%

of students in 2021 came from regional and remote areas

3.1%

of domestic students in 2021 identified as Aboriginal or Torres Strait Islander

17.4%

of students in 2021 were of low socio-economic status

\$1,292,750

in scholarships delivered to students from low socio-economic backgrounds in 2022

571

students received equity scholarships in 2022

26.7%

of students starting in 2022 were 'first-generation students'

13.5%

of international students in 2022 were from developing countries

STRIVING FOR GENDER EQUALITY

64.7%

of the University Council in 2022 were women

40.2%

of senior academic staff are women

57.8%

of students commencing in 2022 were women

56.7%

of graduates in 2022 were women

78.2%

of medical graduates in 2022 were women



INITIATIVE

Woolyungah

The Woolyungah Indigenous Centre (WIC) thrives on nurturing and celebrating Indigenous students through their academic journey.

We offer a culturally safe space that includes study areas, a yarning circle for learning and sharing, a cultural firepit as well as a collaborative space.

Our staff go out into communities to build relationships and connections to make the transition to tertiary learning as smooth as possible.

When money is an obstacle, we offer scholarships.

Where finding work is a challenge, our staff support students' career journey in a holistic manner that ensures their employment aspirations are met.

If we meet a skills deficit, our staff support offers a full range of disciplines and incorporates Indigenous methodology to contemporary approaches to learning.

We know from experience that Indigenous students thrive if they find culturally appropriate support, and that UOW is so much richer for their presence and contribution.



CASE STUDY

Trans and Friends Festival

Holding a festival for trans people and their supporters was much more than a celebration and a party. It was also about saving lives.

Recent Australian data shows 71 per cent of trans respondents aged between 14 and 21 had considered suicide in the last 12 months.

The Trans and Friends Festival Illawarra saw about 1,000 trans and gender diverse people, their friends, families and allies come together to celebrate the richness of this diverse community.

The day aimed to uplift the voices of the trans and gender diverse community and provide links to care and support.





CASE STUDY

Celebrating inclusion and diversity

Inclusion and diversity are not just empty words at UOW, they are a passion and a commitment.

For the fourth consecutive year, the University was recognised for its strong policies and practices surrounding diversity and inclusion, specifically in relation to gender, sex and sexuality diversity activities and initiatives undertaken during 2021.

This was recognised with an Australian Workplace Equality Index 2022 Bronze Award.

Employers that receive a Bronze Award are considered active in workplace inclusion for gender, sex and sexuality diversity, as compared to the national benchmark.

The Bronze Award requires organisations to demonstrate year-on-year improvements in their support and promotion of gender, sex and sexuality diversity to maintain their rating.

Among the many initiatives are a strong and vibrant Ally Network made up of more than 250 staff and student members that are specifically trained to help support and advocate for UOW's gender, sex and sexuality diverse community.



CASE STUDY

Outstanding Indigenous students and graduates celebrated

The dedication, perseverance and success of UOW's best and brightest Aboriginal and Torres Strait Islander students was celebrated during the third UOW Indigenous Students Success Awards Night.

The annual awards night hosted by Woolyungah Indigenous Centre (WIC) offered a much-welcomed opportunity for the community to be able to connect face-to-face again, as the ongoing pandemic kept many WIC students and staff apart for a long time.

Across the evening, 22 Indigenous student awards were presented and several graduates from the class of 2021 were celebrated.



CASE STUDY

Where there's a WIL, there's a way

What are the best ways to support Indigenous students in their learning and ensure they are ready for the workplace?

Researchers from UOW, in collaboration with academics worldwide, released a world-first special issue of a journal discussing Indigenous Work-Integrated Learning (WIL).

WIL is a flourishing educational phenomenon that is changing higher education.

It gives students an opportunity for meaningful, relevant and engaging learning experiences both inside and away from classroom environments.

The editors hope the special edition International Journal of Work-Integrated Learning will become a foundational publication for those working in the field.





CASE STUDY

Respect, consent and inclusion

Sexual abuse survivor and former Australian of the Year Grace Tame shared her experience as part of a packed calendar of events at UOW Respect Week.

Throughout Australia, one in six students have experienced some form of sexual harassment or abuse. According to other statistics, one in three has been bullied based on race, cultural affiliation or gender.

Grace Tame's talk was part of five days of panel discussions, training opportunities for staff and students, and activities based around the themes of cultural respect, sexual harassment and assault, equity, diversity and inclusion.



CASE STUDY

Support network for people with a disability

What does access and inclusion truly look like for people with a disability? How do we create community-based support for people with a disability that has a tangible and lasting impact?

These are the questions being asked by the newly formed Disability and Inclusion Network, representing people living with disability, their friends and supporters.

The network is open to people with or without a disability.

Its goal is to promote access and inclusion at UOW, aid access to information about resources and services, and to support people with disabilities and their allies.



CASE STUDY

Scholarship covers tuition fees

A scholarship – named after activist Aunty Linda Cruse – will make it easier for Aboriginal and Torres Strait Islander students to study at UOW.

The Aunty Linda Cruse Scholarship is for Indigenous students who aspire to achieve a higher education or vocational qualification through study at UOW College.

The full fee-paying scholarship covers all tuition fees that would normally be borne by the student.

All UOW College courses are eligible for the scholarship.

Aunty Linda Cruse was a committed activist who paved the way for Aboriginal and Torres Strait Islander students to access educational pathways through UOW.



Industry & energy transformation

The region which UOW was founded in has long thrived on high-energy, heavy industry and manufacturing.

The University has led the transformation of these industries and has earned a global reputation in engineering, development of sustainable buildings, renewable energy and materials science.

Industry and community partnerships form the heart of this burgeoning reputation as a centre of excellence in clean energy transformation.



Industry & energy transformation in numbers

5th

SDG 8: Decent Work and
Economic Growth
THE Impact Rankings 2023

70th

SDG 7: Affordable and Clean
Energy
THE Impact Rankings 2023

82nd

SDG 12: Responsible Consumption
and Production
THE Impact Rankings 2023

Top 50

Energy and Fuel
US News Best Global Universities ranking 2022

Top 50

Energy Science & Engineering and
Mineral and Mining Engineering
Academic Ranking of World Universities 2022

Top 100

Mineral and Mining Engineering
QS World University Rankings by Subject 2023

5 Stars

Engineering - Mineral & Mining
QS Stars 2022

5 Stars

Innovation
QS Stars 2022



Reducing our environmental footprint

6%

decrease in total energy
consumption in 2022
(compared to 2019)

10%

decrease in greenhouse gas
emissions since 2019

22%

of energy consumed from low
carbon sources (15% in 2019)

5,387 GJ

of solar energy generated across
campuses in 2022²

1.6MW

of solar energy PV installed on
campus as of 2022

\$16.2M

received from industry
partnerships¹

\$26.3M

received from government
agencies¹

295

active research partnerships with
industry and government in 2022¹

¹ 2021 HERDC submission
² Campuses include Wollongong, Innovation
campus, Moss Vale and Kids Uni CBD



RESEARCH

UOW Energy Futures Network

Declared a Renewable Energy Zone by the NSW Government, the Illawarra plays a central role in Australia's renewable energy future, powering existing and emerging industries, including green hydrogen and green steel production.

We created the UOW Energy Futures Network, a multi-disciplinary collaborative group of energy researchers that coordinate activities to create a holistic energy research environment.

Our research develops sustainable solutions that embrace new technologies and connects industrial centres with renewable energy.

Collaboration with wider UOW research, such as The Australian Centre for Culture, Environment, Society and Space (ACCESS) and The Australian National Centre for Ocean Resources & Security (ANCORS), allows for expertise that is both broad and deep. Other collaboration includes renewable energy systems, power systems, sustainability, power quality and reliability, battery energy technology, distributed energy generation, microgrids, infrastructure modelling and economics, and research and development leading to a more hydrogenintensive economy.



RESEARCH

ARC Training Centre in Energy Technologies for Future Grids

Energy supply systems worldwide are experiencing the greatest transformation, with many countries working towards a target for a net-zero future.

The pace of this transformational change has been incredibly rapid and many industry sectors are finding the transition challenging.

The ARC Training Centre in Energy Technologies for Future Grids addresses the complex and challenging issues currently limiting the growth of renewable energy.

The goal is to develop innovative methodology and technology that will facilitate the widespread integration of renewable resources into electricity grids while maintaining grid stability.

The vision of the Future Grid Training Centre is to provide industries with a cohort of engineers who are trained in the multi-disciplinary skills required to facilitate the transition to a zero-carbon electricity system with a reliable and affordable energy future.

We are training a new generation of electrical power engineers who understand the dynamics of the transition to this new electricity supply model.



RESEARCH

Australian Power Quality Research Centre

The Australian Power Quality Research Centre (APQRC) has pioneered and currently maintains a national database of real-time power quality throughout Australia.

Working out of the Sustainable Buildings Research Centre, we are an internationally recognised centre of excellence which supports research, education and consulting in distribution and transmission system power quality, reliability and renewable energy systems.

Our focus is to partner with industry to improve the quality and reliability of electricity supply for the benefit of all consumers. This is achieved through education, research and consulting activities.

Our wide-ranging expertise in both power systems and customer loads, strong contacts with industry and knowledge of international research efforts is at the core of what we do.

Research focuses on power reliability, power quality and distributed generation.

We work with the Australian Renewable Energy Agency to better understand how to effectively integrate renewable energy to ensure a safe, reliable and low-cost future electricity supply system.



CASE STUDY

Hydrogen can now be produced at costs similar to those of fossil fuels thanks to a scientific breakthrough by UOW researchers

Research published by the ARC Centre of Excellence for Electromaterial Science (ACES) and the Intelligent Polymer Research Institute (IPRI) has described a “capillary-fed electrolysis cell” that can produce green hydrogen from water at 95 per cent overall system efficiency.

This compares to 75 percent or less for existing electrolyser technologies.

The breakthrough research led to the creation of a spin-out company, Hysata, which was formed in 2021 to commercialise the breakthrough hydrogen electrolyser technology.

Researchers say the electrolyser will deliver the world’s lowest hydrogen cost, save hydrogen producers billions of dollars in electricity costs, and enable green hydrogen to outcompete fossil fuel-derived hydrogen.

They say the technology is well-placed to capitalise on global momentum towards net-zero where green hydrogen is expected to play a significant part.



Delivering quality education

We believe that quality education begins at birth and continues through life.

We also believe that it is the birthright of us all to be able to access everything necessary to live a full, rich and purposeful life.

Together, we are a community of learning who support each other to reach our highest potential.

1st

in NSW, Creative Arts
QILT 2022

1st

in NSW, Law and Paralegal
Studies
QILT 2022

1st

in NSW, Teacher Education
QILT 2022

5 stars

Specialist Criteria: Teaching
QS Stars 2022





INITIATIVE

Early Start

Engagement is at the heart of Early Start.

The Early Start Discovery Space is a vibrant play area enlivened by children's voices that provides interactive experiences, stimulating educational programs, and learn-through-play activities for children.

UOW researchers and their findings guide and influence all educational aspects of the Discovery Space, ensuring play-based experiences are grounded in evidence and beneficial to children's development.

This engagement continues with a network of early childhood education and care centres in regional and remote areas to enrich professional practice and strengthen the outcomes for children.

It's all about turning our research into practice.

We engage at all levels to create a direct, positive impact on children, families, service providers, charitable organisations and government policy.

Whether it's providing evidence-based early intervention and mental health support services for supporting those working with neurodiverse children, or creating an online portal for parents caring for pre-schoolers at home, our research is all about changing young lives for the better.



INITIATIVE

Outreach and pathways

Our work with students begins well before they arrive on campus.

We have a proud history of welcoming students who are often the first in their family ever to benefit from a university education.

This does not happen by accident.

Our outreach and school programs work with primary and high school students, teachers and parents.

The aim is to spark an aspiration towards higher education by providing students with the knowledge and skills to get there.

We offer an early taste of the excitement that comes with learning through our Learning Labs, from the start of primary education through to Year 10.

These one or two-day holiday workshops provide academic and arts enrichment covering numerous interest areas for high-achieving students.

We also visit schools in our catchment to talk about what is possible, and offer online mentoring to senior high school students contemplating the next step.



CASE STUDY

Fun online learning at home

A free online portal grew out of the pandemic experience where parents found themselves educating pre-schoolers at home.

The portal features curated content designed to support families and carers with young children's learning in the home environment, with a focus on evidence-informed, play-based learning and the family's role in early development.

Play & Learn Together was created by Early Start, with partners Early Childhood Australia and Playgroup Australia and generous support from The Ian Potter Foundation.



CASE STUDY

Empowering people with autism

Engaging and empowering autistic and neurodivergent communities was the subject of an online webinar to mark World Autism Day.

The webinar featured experts from UOW and the Australian Catholic University with the message that working collaboratively with autistic individuals is an essential part of creating research and teaching initiatives.

The webinar explored the services, supports and needs of autistic people of all ages in Australia and how to create inclusive and supportive environments.





CASE STUDY

Supporting carers of children with autism

The Early Start Autism Clinic at UOW already offers the most comprehensive Early Start Denver Model program in the country.

The model is an evidence-based behavioural intervention specifically designed for young children with Autism Spectrum Disorder (ASD).

In response to community demand, the clinic launched an expanded offering of support services and training for those caring for and working with children with ASD.

The program can significantly improve cognitive, communication and adaptive behaviours of children with ASD.

The essence behind the Early Start Denver Model is to bring the child with autism back into the social loop at every opportunity.

This keeps the child socially engaged with others, which is where the typically developing child does most of their learning.

Strong scientific research supports the efficacy of the program, with a recent randomised controlled trial showing a direct correlation between the fidelity of professionals and parents trained in the Early Start Denver Model and the developmental progress of children.





CASE STUDY

Sharing their art with the world

Pre-schoolers from the Shoalhaven joined their peers from 12 countries to exhibit their art at an international early childhood care and education conference.

The Voices of Children project was established in 2004 by UOW researchers.

The project originally explored the lives of children and young people in several different countries through the images they produce, using disposable cameras, as well as written responses to questions about themselves, their families and their worlds.

In 2021 it included the art of 1,500 pre-schoolers in two online galleries to coincide with a conference in Athens, Greece.



CASE STUDY

The art of online teaching

Pandemic lockdowns may have ended but online learning is here to stay.

Associate Professor Sarah Howard from the School of Education at UOW focuses on the use of new technologies and data science to explore classroom practice and teacher change, related to technology adoption and integration in learning.

She shared her insights into the opportunities and pitfalls of digital learning at a UNESCO-supported international education summit hosted by Kyoto University in Japan.

The conference was hybrid – part in-person and part online.





Community engagement & partnerships

From its earliest history, UOW has prided itself as an institution embedded in its community and committed to creating innovative partnerships. These days, those collaborations span from a single entrepreneur with a dream to change the world through to global institutions such as the United Nations.

64th

SDG 9: Industry, Innovation and Infrastructure

THE Impact Rankings 2023

=88th

SDG 16: Peace, Justice and Strong Institutions

THE Impact Rankings 2023

Community engagement & partnerships in numbers

WORKING WITH LOCAL AND GLOBAL COMMUNITIES

53

active research partnerships in 2022 were with not-for-profit organisations

69.7%

of international research collaborations in 2022 were with developing countries

TEACHING, LEARNING AND ADVOCACY

76

subjects about the SDGs in 2022

13,401

students studying subjects about the SDGs in 2022

3,484

organisations currently collaborating with UOW from community, university, government and industry

RESEARCH

5.8%

of publications contributing to the SDGs in top 1% of journals

9,400

UOW stories about the SDGs published in the media in 2022

7.57 billion

potential reach of media stories featuring SDGs in 2022

Distribution of UOW 2022 publications across UN SDGs

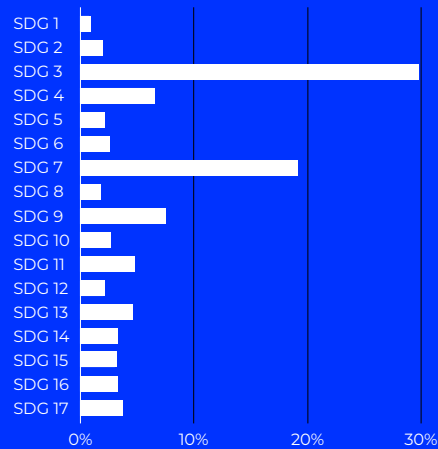


Chart 1. Distribution of UOW SDG 2022 publications. Source: SciVal, based on Scopus data as at 7 June 2023.



RESEARCH

Australian National Centre for Ocean Resources and Security

The Australian National Centre for Ocean Resources and Security (ANCORS) is Australia's only multidisciplinary university-based centre dedicated to research, education and training on ocean law, maritime security and natural marine resource management.

We work to provide a global framework for ocean law and policy, providing expert advice to formulate the United Nations Convention on the Law of the Sea, which lies at the heart of ocean law.

Our research delivers practical, up-to-date analysis and informs our advisory services to ocean law and policy developers and implementers in Australia, throughout the wider Indo-Pacific region, and globally.

We work with communities, government organisations and industry in fisheries economics management.

Sustainability is at the heart of everything we do, as we face a critical time when – for the first time in history – we possess the technology to damage our ocean ecosystems beyond the point of no return.





RESEARCH

Australian Institute for Innovative Materials

The Australian Institute for Innovative Materials (AIIM) is a purpose-built facility to help transform multi-functional materials research into commercial reality.

Our two flagship research groups - the Intelligent Polymer Research Institute (IPRI) and the Institute for Superconducting and Electronic Materials (ISEM) - bring together chemists, engineers, physicists, biologists and materials scientists under one roof to interact, collaborate and innovate.

We are world leaders in creating new materials that have special features, can improve performance or have new applications.

Our researchers are changing the world of materials in almost every way imaginable, whether it's through printing new cartilage in medical applications such as treatment of burns victims, or transforming energy storage through innovative research of nanomaterials – and the reach is global.

In 2020, there were six UOW researchers who were named in the top 1 per cent of most cited academics globally. All worked at AIIM.



INITIATIVE

iAccelerate

iAccelerate is both a program and a community of entrepreneurs with ambition to fuse world-leading ideas with smart business acumen.

For the past decade, iAccelerate has created a vibrant ecosystem that prompts the cleverest ideas to not only take shape but grow and thrive.

We do not take a cash stake in our companies, and we take a long-term view because business success seldom happens overnight.

We're the only program of our kind to fuse a pre-accelerator program, accelerator program and incubation.

The success of our philosophy can be seen in our results.

The business incubator has partnered with about 250 business start-ups and helped create more than 750 jobs.

The pandemic years created both challenges and opportunities for start-ups, as companies digitised many of their activities 20 to 25 times faster than before the COVID-19 pandemic.

The incubator provides knowledge, mentoring, advice and access to a world-class research university to create a real impact locally, regionally and globally.



CASE STUDY

Reducing steelmaking emissions

Iron ore mining and steelmaking are vital industries in the Australian economy but significant contributors to greenhouse emissions.

More than 7 per cent of the world's emissions come from steelmaking.

Exploring ways to produce steel using innovative methods designed to reduce emissions is the challenge facing the ARC Steel Research Hub at UOW.

Researchers are partnering with BlueScope and the Future Fuels CRC to help advance a range of innovative solutions for future lower emissions steelmaking at Port Kembla, NSW.

This project will explore prospective technologies which have the potential to reduce emissions across steel manufacturing at the Port Kembla steelworks.

This will include the role that the emerging renewable hydrogen industry can play on the pathway to low emissions steel.

The UOW Steel Research Hub supports the transition of Australia's steel manufacturing industry to a more sustainable, competitive and resilient position based on the creation of new, higher value-added products and more advanced manufacturing processes.





CASE STUDY

Rising from the ashes

UOW is ideally placed to support entrepreneurs in NSW South Coast regions ravaged by bushfires.

The University’s business incubator, iAccelerate, was awarded almost \$1 million to bring a targeted education program for entrepreneurs to 10 bushfire-affected regions.

The Rise Entrepreneur Support Program is a partnership between the Eurobodalla Shire Council and UOW Eurobodalla campus.

The initiative will deliver education programs to support 90 of the most promising entrepreneurs and business owners in bushfire-affected areas to create 300 new jobs.

The program follows the launch of the Bega Valley Innovation Hub in NSW’s Far South Coast.



CASE STUDY

Affordable education for low-income students

Once you have a safe, secure, affordable home, your next priority is education.

Yet escalating costs of living can be a significant barrier for students coming from low socio-economic backgrounds.

To address this injustice, UOW entered into a new partnership with Housing Trust, a for-purpose community housing provider operating in the Illawarra and Shoalhaven.

The Housing Trust Opportunity Scholarship is a generous stipend of \$5,000 per year over three years, for full-time students living in social or affordable housing in the Illawarra-Shoalhaven.



CASE STUDY

Global network to support women engineers

The Women Research Engineer’s Network (WREN) aims to narrow the gender gap in engineering research careers.

Founded in 2021 by early-career researchers from the Faculty of Engineering and Information Sciences, the network was launched with funding from the Council on Australia-Latin America Relations as a bilateral collaboration between Australia and Brazil.

In just a year, WREN grew to a network of over 250 researchers, hosted five online events, built an online collaboration portal, submitted five grant applications and seeded co-teaching collaboration.

Now, with a grant from Australia-ASEAN Council secured, the network is expanding to Malaysia, Thailand, Indonesia and Vietnam through a webinar and podcast series.



The 17 goals

Adopted by the United Nations in 2015, the SDGs are a call-to-action for people worldwide to address five critical areas of importance by 2030: people, planet, prosperity, peace, and partnership. In total, there are 17 goals aimed at improving the planet and the quality of human life around the world.



Goal 1: No Poverty

End poverty in all its forms everywhere.



Goal 2: Zero Hunger

End hunger, achieve food security and improved nutrition and promote sustainable agriculture.



Goal 3: Good Health and Well-Being

Ensure healthy lives and promote well-being for all at all ages.



Goal 4: Quality Education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.



Goal 5: Gender Equality

Achieve gender equality and empower all women and girls.



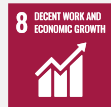
Goal 6: Clean Water and Sanitation

Ensure availability and sustainable management of water and sanitation for all.



Goal 7: Affordable and Clean Energy

Ensure access to affordable, reliable, sustainable and modern energy for all.



Goal 8: Decent Work and Economic Growth

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.



Goal 9: Industry, Innovation, and Infrastructure

Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.



Goal 10: Reduced Inequalities

Reduce inequality within and among countries.



Goal 11: Sustainable Cities and Communities

Make cities and human settlements inclusive, safe, resilient and sustainable.



Goal 12: Responsible Consumption and Production

Ensure sustainable consumption and production patterns.



Goal 13: Climate Action

Take urgent action to combat climate change and its impacts.



Goal 14: Life Below Water

Conserve and sustainably use the oceans, seas and marine resources for sustainable development.



Goal 15: Life on Land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.



Goal 16: Peace, Justice and Strong Institutions

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.



Goal 17: Partnerships for the Goals

Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development.

Learn more

uow.info/sdgs
sdgs-uow@uow.edu.au

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