University of Western Sydney

Research Themes

Our themes

The University of Western Sydney is student-focused and research-led. Our research changes lives. For our students, this means being taught by leading researchers and participating in research at every stage of their degree. We believe this produces work-ready, solution-focussed students who can solve new problems and adapt to new opportunities.

For our communities—and our communities are local, national and global—this means that we create research with impact. We believe excellent research and practical outcomes are essential parts of our overarching research mission.

The research themes described in this booklet are our way of continuing a conversation with our communities. These conversations guide our research. Within the University we have disciplines and specialisations; outside the University there are real challenges that cross over these distinctions. The conversations we have with our key stakeholders drive multi-disciplinary, impactful research.

We see research as a partnership. We want you to know about the research we create so that we can ensure its relevance and shape its impact.

This booklet describes the University's research themes, and profiles some of our academics and the research they undertake. It is not a complete picture: our research and scholarly activities are vast and diverse.

'The University of Western Sydney is a research institution driven by impact. Our research makes a difference regionally, nationally and globally. We are committed to collaboration with our regional, national and international communities to contribute to their economic, social and environmental well-being.'

Professor Scott Holmes is the University of Western Sydney's Deputy Vice-Chancellor Research and Development.

research theme

Urban Living and Society

people, culture, economy and the built environment

Research within our Urban Living and Society theme is focused on understanding and guiding change: in the economy, in society, and in culture. Our researchers approach change through the lens of urban living, seeking to understand how the places we live, the work we do, the way we describe ourselves and the bonds we form interrelate. These relationships determine our shared quality of life and physical health, and our research is aimed at ways to improve both.

Our current and expanding interdisciplinary research expertise in urban planning, the digital humanities, infrastructure engineering, innovation networks, business support, social cohesion, the law, governance frameworks, cultural studies and globalisation serve our communities world wide as they adapt to urban change.

Over the next twenty years Western Sydney will be the location of one of the largest infrastructure spends in Australian history. Sydney's second airport, at Badgerys Creek, will not only be the first infrastructure spend of its kind in Australia in thirty years, it will be accompanied by a number of hard infrastructure support systems to manage the logistics of the airport.

With planned expansions of the traffic corridors from the north and east, Greater Western Sydney will be more accessible to its nearest population centres and, through the new airport, the world.

This hard infrastructure will need to be accompanied by soft infrastructure. Western Sydney is experiencing changing land-use, changing demographics and a changing industry profile. The new developments will accelerate the pace of change and increase the need for influential research that guides long-term thinking for Western Sydney. Inclusion and equity, the professional production of creative art work and its appreciation in museums, galleries, theatres and cinemas, will be essential elements in a system that includes roads, rail and airports.

The challenges Western Sydney faces in securing jobs for the future, managing population growth and social cohesion, and expanding cultural expression are shared around the world. The research we perform here represents an extreme real-world product testing for research that addresses these challenges.

Snapshot

Deal or no deal

It seems obvious: young people spend; older people save.

But what influences the differences in financial decision-making between younger and older people?

UWS's Dr Phoebe Bailey used the Ultimatum Game to find out. The Ultimatum Game is a well-known experiment played by two people. One person gets an amount of money and must split it with another. The other person can either accept an offer and both get paid, or reject it and neither get paid.

Phoebe used the game to test the responses of a group of young people—around 21 years old—and a group of older people—around 74 years old. She confirmed that younger people were more likely to reject an offer because they perceived it to be unfair; but, for the first time, she showed that older players experienced the same emotional response as younger players, yet were more likely to accept whatever was offered.

A number of factors might be at play. Older people may have learnt to control their emotions and make more rational decisions than younger people, or their offers might be more generous in the first place.

The bottom line: the way older people manage their emotions when making financial decisions could inform programs to help young people's financial literacy.

'Younger adults could learn a thing or two from seniors about financial decision-making'

Dr Phoebe Bailey is a psychology and ageing researcher, using neuroeconomics to understand older adults' interpersonal financial decision-making

Snapshot

Around 27% of Australians have experienced verbal abuse, name-calling and ridicule on the basis of their cultural background. Those from homes or communities where languages other than English were dominant were twice as likely to experience this racist talk than those who were not.

Is Australia racist?

UWS's Challenging Racism group has been collecting and analysing the data to answer that question for over a decade.

Their most recent project has been a collaboration with All Together Now, a not for profit organisation, the University of Melbourne and Deakin University. Together they developed the Everyday Racism app. The Everyday Racism app lets users experience racism from the perspective of someone whom it affects.

And the need for tech solutions to the problem of casual racism is growing alongside social media. A recent survey by the group suggested that around 35% of users across social media platforms had witnessed racism. Half of this group didn't respond to the racism they witnessed.

The Everyday Racism app is helping to change this by raising awareness and empowering young people to take action when they see racism online. Early indications point towards its success: 60% of players reported speaking out against racism since using the app.

Lessening racism every day

'Don't just sit quietly, make it clear that people with racist views are in the minority'

Professor Kevin Dunn has led Australian racism research for over fifteen years. He is UWS's Dean of Social Sciences and Psychology.

research theme

Education and Aspirational Change

access, equity and pathways

Research within our Education and Aspirational Change: access, equity and pathways theme draws on the population diversity of Western Sydney to underpin research that explores educational access on a global scale. This research theme supports individuals and communities in achieving their economic, social and cultural aspirations through education.

Our research expertise in equity and sustainability is led by the Centre for Educational Research. The Centre's activities extend from grass-roots programs in environmental sustainability to supporting international communities in community-led and locally-relevant education. Through UWS's MARCS Institute, this theme takes in early childhood learning, focussing on the building blocks of language acquisition and literacy. Research in the digital humanities enables UWS to understand the technologies transforming education and the new ways of teaching these technologies make possible.

Increasingly, as western economies transition from manufacturing to knowledge industries as the key driver of productivity and economic prosperity, educational attainment and economic success will be twinned. And this is true both for the individual and the nation. There is an increased need for effective, comprehensive and inclusive primary, secondary and tertiary education.

UWS's backyard is a microcosm of this global challenge. With a changing industry mix and manufacturing as a diminishing source of employment, understanding and addressing issues affecting access to education is crucial to the prosperity of Western Sydney and the nation.

Snapshot

Growing up queer

Growing up is hard enough when your family, peers and teachers support you.

But when you grow up with a gender or sexual identity that is not perceived to be ‘normal’ it can be even harder. Research suggests that up to two-thirds of young people who identify as gender or sexuality diverse—gay, lesbian, bisexual, transsexual, intersex, queer—experience homophobia or transphobia in some form. Up to a fifth of those who experience abuse experience physical abuse.

Professor Kerry Robinson is a leading researcher in gender and sexuality studies and sexual education. Together with colleagues from the Sexualities and Genders Research Network, and in association with the Young and Well Cooperative Research Centre, she has led a survey into the issues facing LGBTIQ young Australians: Growing up Queer.

Most of the young people surveyed identified their school as the main source of exposure to homophobia and transphobia. But the bullying wasn’t confined to their co-students. Many identified teachers as the source of mistreatment that has had a profound impact on their lives.

The results point toward the continuing importance of Kerry’s work in understanding the impact and changing the prevalence of homophobia and transphobia, particularly within the education system—work that has been ongoing for over a decade.

Professor Kerry Robinson is the leader of the Sexualitites and Genders Research Network

Dr Peter Bansel is a research fellow with the Sexualities and Genders Research Network

Dr Nida Denson is senior research fellow and postdoctoral fellow whose research explores exposure to diversity in the classroom

Snapshot

More than babytalk

In many cultures we talk to babies in a special way: it's called 'motherese'. This way of talking to babies is slower, simpler, and more gestural than speech directed at adults—like when you say 'yeesssss we are going to change your nappy. Yeeessss we are' while nodding your head.

Speaking motherese helps babies acquire language, but we don't fully understand how motherese works, and how factors like visual speech gestures, facial movements and accent play a part in it. Dr Christine Kitamura, Associate Professor Jeesun Kim and the UWS BabyLab are working to fill this knowledge gap. One focus of Christine's work is how we can recognise speech sounds despite differences in tone, pitch and accent. In an experiment examining babies' reactions to Australian, American and South African accents she and her team found that within a year babies seemed to recognise English in any of the accents.

Another focus is the role that non-verbal cues play in enabling babies to acquire language. Christine's recent work has used computer-generated avatars to test the association between facial movements, voice and understanding.

Understanding these basic elements of how babies learn language will inform future developments in computer-generated avatars to aid in language development as well as guiding interventions for those children suffering from a language disability.

Dr Christine Kitamura is a leading researcher in infant-directed speech and early speech perception. She works with the BabyLab team in UWS's MARCS Institute.

Associate Professor Jeesun Kim provides leadership within the MARCS institute on the measurement and analysis of visual speech.

research theme

Environmental Sustainability

climate, agriculture and resources

UWS's campuses range across both Sydney's second CBD, Parramatta, and its remaining agricultural areas. The University's footprint is a crucible for the environmental pressures facing the world: contested land-use, urban and agricultural climate change adaptation, and resource conservation.

Research within our Environmental Sustainability theme is broad, practical and interdisciplinary, and is focused on maintaining and managing the diversity of urban, agricultural and natural systems. Our research expertise within this theme relies on insights from sociology, the arts, engineering, green IT and economics as well as the biological and physical sciences. The use and production of recycled materials, urban green cover and public health, small business attitudes towards climate change: these are some of the ways in which UWS researchers are engaging with environmental sustainability across disciplinary boundaries.

The Hawkesbury Institute for the Environment leads UWS research into Environmental Sustainability, drawing on UWS's unique proximity to areas facing the acute pressures of climate change adaptation and changing land-use to undertake essential research into soil biology, ecosystem integration and function, and plant and animal adaptations to a changing climate.

The Hawkesbury Institute for the Environment uses large-scale, innovative research infrastructure to advance global research. EucFACE, the only native forest free air carbon enrichment facility worldwide, allows researchers to field test the effects of increased atmospheric carbon on mature trees.

While the University's neighbourhood gives it a unique perspective on the interdependence of urban and agricultural systems within a local area, our research extends beyond the region. Local environments are connected with global issues, issues like food security, resource scarcity and climate change. UWS research in any geographical region—from research into saving the Cumberland Plain Snail to the capacity of Australian Eucalypts to adapt to and mitigate rising levels of atmospheric carbon dioxide— will have an impact on all regions.

Snapshot

There are over 100 golf courses in the Greater Sydney Region. Collectively they cover around 150 square kilometres. To put that in perspective, the Blue Mountains National Park covers 2690 square kilometres. Despite their relatively small size, golf courses represent a precious green corridor slicing through suburbia.

Already, this green corridor provides a habitat for plants and animals squeezed out by urban sprawl. As land-use pressures increase—led by housing developments on greenfield sites—these golf courses will become more important for Sydney. With a changing climate, golf courses have the potential to provide a valuable carbon sink across the developed world: it is estimated that England has 2700 square kilometres of golf courses; the US, 11,000 square kilometres.

A team at the University of Western Sydney's Hawkesbury Institute for the Environment is working with Golf NSW and Sydney Local Land Services. Their aim is to measure golf courses' current levels of biodiversity and carbon storage and increase this capacity through better land management. Golf is a one-person sport; this kind of research—involving intricate ecosystems, human behavior, and the complex interactions between them—is not. It takes soil specialists, biodiversity experts and climate change researchers alongside committed industry and public sector partners to achieve change.

On the green

Lead investigator Associate Professor Sally Power is an ecosystems ecologist researching human and environmental interactions

Professor Brajesh Singh is an internationally recognised expert in the field of microbial ecology

Dr Catriona Macdonald is an expert on the producitivity and sustainability of soils

Professor James Cook researches species interactions and how they affect ecology and evolution

Snapshot

World agriculture faces increasing energy costs, water scarcity, increasing competition for good farming land, and a decline in its workforce's relevant skills. Meanwhile, the world's population is increasing. There are more of us, and more of us want high-quality, locally produced food.

Protected cropping—greenhouse grown and hydroponics—could be a big part of the solution. Already, protected cropping accounts for a large and growing portion of Australia's vegetable and cut flower production. Australia's largest protected cropping facility produces over 19 million kilograms of vine-ripened tomatoes a year. But we lack the facilities to undertake research to improve the industry's efficiency and increase its export competitiveness.

The joint UWS and Horticulture Innovation Australia greenhouse will provide these facilities in Western Sydney—a peri-urban area that produces protected crops for Greater Sydney and the world.

Based on a design from Wageningen University Research in the Netherlands, the UWS greenhouse will provide high levels of control over humidity, temperature, light and CO2. This facility—the first of its kind and scale in Australia—will allow researchers to test multiple conditions affecting the growth of plants in protected crop environments. The result of this research will be increased crop yields with lower energy and water costs, benefiting producers, consumers and the environment.

Feeding future cities

'The new facilities at UWS will help growers tap into the latest research and practices to make their operations more efficient'

Professor Bill Bellotti is the Vincent Fairfax Chair for Environmental Sustainability at UWS. Together with his colleague Dr Zhong Hua Chen and a team of researchers, Bill is leading the development of the UWS Greenhouse.

research theme

Health and Well-being

translation, service and innovation

Research within our Health and Wellbeing theme explores how health initiatives can prevent disease and illness, encourage healthy lifestyles in individuals and communities, and reduce the cost and impact of illness. We take an integrated approach to health research. The environments in which we live, the cultural background from which we come, and the work we do all affect our physical and mental health.

And, despite continuous improvements in medicine and medical care, the need for this care is growing. One in four children are overweight or obese. While the amount of Australians smoking has halved since 1991, 12.8% of Australians still smoke. Almost one in five people consume alcohol in such a way that it puts them at risk of an alcohol-related disease or injury. Health and wellbeing are linked. UWS's effective, research-led interventions focus on the complex factors contributing to health outcomes.

We have research expertise across a range of health research specialisations, from e-health service delivery and reaction chromatography diagnostics to translational cancer research and sports science. Our National Institute for Complementary Medicine conducts robust research into complementary therapies, bridging the gap between the widespread use of complementary therapies and evidence of their effectiveness. The Institute for Population and Community Health conducts research into chronic disease, mental health, Indigenous health and health services, bringing together leading researchers who are oriented to the translation of basic research into community health services and policy and concerned with the needs of the individual within a complex health system.

Snapshot

Fifty-six percent of children aged between 12 and 17 access social media on their computer every day. Forty one percent access social media on their phones every day. Young people are transforming their lives through these digital tools, using networks that change the way they form relationships, access education and participate in politics.

At the same time, they face risks to their safety and wellbeing: online bullying, upsetting and explicit content and managing the increasing demands of being ‘always on’.

We are helping to strike that balance. UWS is part of the Young and Well Collaborative Research Centre—a group of university and industry partners undertaking research on how technologies can support young people to be safe, healthy and resilient. The University’s Dr Pip Collin leads the Safe and Supportive research program for the Centre. Safe and Supportive researches strategies and tools to promote cybersafety, mental health and wellbeing.

Just like the people she researches, Pip’s work is connected: with industry partners like ReachOut.com and with the young people for whom it will make a difference. The research program she leads creates practical outcomes to improve young people’s wellness like The Toolbox—an online, personalised recommendation service for apps with proven positive outcomes for youth wellbeing.

Staying connected

‘Creative content production and sharing empowers individual young people’

Dr Pip Collin is a Research Fellow at the Institute for Culture and Society and also Program Leader in the Young and Well Cooperative Research Centre. She has extensive experience in the community sector and is the author of **Young Citizens and Political Participation in a Digital Society.**

Snapshot

What if living closer to a local park meant you were less likely to develop a disease like diabetes?

In 2008-2009, estimated health spending on diabetes was around one and a half billion dollars. Since the likelihood of developing diabetes increases with age, Australia's aging population is likely to cause the number of Type 2 diabetes sufferers to double between 2000 and 2051. The number will more than double if more of us are obese and more of us are less active.

Dr Thomas Astell-Burt's research explores the connections between where we live and how healthy we are. His major work has examined the effect that access to green space—parks, bushland, sporting grounds—has on our likelihood to exercise. In a study of 200,000 people over the age of 45 he found that living within a kilometre from significant green space increased the likelihood of exercise.

This has significant implications for the way we plan communities. Jobs, transport and urban amenity are key features of urban planning; health should be a key element too. By increasing access to green space it might be possible to reduce the rates of lifestyle-related illnesses like Type 2 diabetes—by design rather than treatment.

Health around the corner

'Improving green space access for those on a low income could enable positive lifestyle changes'

Dr Thomas Astell-Burt is a leading public health researcher. Thomas is mapping the geographies affecting health and wellbeing.