

WESTERN SYDNEY
UNIVERSITY



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GradLife

Dynamic changemakers

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Front Cover Photo: Associate Professor Catherine Attard, PhD, 2011, Master of Education, 2006 and Bachelor of Education - Primary (Conversion), 2004

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MESSAGE FROM VICE-CHANCELLOR AND PRESIDENT, PROFESSOR BARNEY GLOVER



In 2016, Western Sydney University reached a significant milestone in its history with the School of Business relocating to our first vertical campus, 1 Parramatta Square (1PSQ). Located in the heart of Parramatta's CBD, the campus will be one of Australia's most digitally-infused and technology-rich teaching and research spaces, and will deliver an enhanced student learning experience with close links to business and industry.

The Parramatta City campus will be a dynamic place of learning for over 10,000 Western Sydney University Business School students. The innovative learning and teaching spaces at 1PSQ reflect the latest advances in higher education thinking and provide space for our students to challenge ideas, explore opportunities for collaboration and network with industry leaders.

As core tenants of the facility, the School of Business will share 1PSQ with PricewaterhouseCoopers (PwC). This partnership will afford Western Sydney University students the opportunity to work with business leaders and reflects the growing importance of industry engagement in delivering 'work-ready' graduates.

Western Sydney University is proud to provide students with a world-class education. Our teaching staff are leaders in their field and have been recognised internationally for their expertise. In 2016, the University celebrated Associate Professor Catherine Attard's success at the Australian University Teaching Awards. Associate Professor Attard received a prestigious Award for Teaching Excellence in recognition of her outstanding achievements in teaching primary mathematics. Associate Professor Attard provides our students with an innovative platform to learn, helping to create the next generation of world-leading teachers in the region.

Western Sydney University is proud of the accomplishments and contributions of its alumni. Our upcoming Alumni Awards will celebrate the outstanding professional achievements of notable alumni. I was delighted by the exceptional nominations received this year and I look forward to announcing the winners of our award categories later in 2017.

With our growing presence in the Parramatta CBD, Western Sydney University is reinforcing its commitment to the region. As a leading institution in the most dynamic economic and cultural region in Australia, we look forward to the contribution our graduates will make in shaping Western Sydney's future.

Professor Barney Glover
Vice-Chancellor and President





Mathematics Education: Who's Responsible?

Mathematics education features regularly in the media. The most recent international testing results highlight a decline in Australia's mathematics achievement when compared to other countries. So, who's responsible? Is it teachers, or should parents and the broader community share some of the blame? Typically, teachers are the first to be blamed because they work at the coal face, spending significant amounts of time with students, making them an easy target. But shouldn't we, as a society that considers it acceptable to proudly claim, 'I'm not good at maths,' take some portion of the blame?

NUMERACY AND MATHEMATICS EDUCATION IS EVERYONE'S BUSINESS

As a society, we must all take some responsibility for the decline in mathematics achievement and we all need to collaborate on a plan to change the decline into an incline. There are three groups of stakeholders who need to work together: the general community, the policy makers and school systems that influence and implement the policies, and the teachers.

It seems everybody's an expert when it comes to mathematics education because we all experienced schooling in some form. Many say, 'I survived rote learning – it didn't hurt me'. The world has changed, access to information and technology has improved dramatically, and the traditional 'chalk and talk' practices are no longer appropriate in today's classrooms. Many hold a limited view of school mathematics as drill and practice and computation. Although it's

important that children build fluency, it's simply not enough. We must promote problem solving and critical thinking – making the purpose of learning mathematics visible to students. It is, after all, problem solving that forms the core of national and international tests.

Community pressure for teachers to use textbooks and teach using outdated methods, along with a crowded curriculum and an implied requirement for teachers to 'tick curriculum boxes' causes significant tensions for teachers, particularly in the primary school where they are required to be experts at every subject. Consider the limited number of hours allocated to mathematics education in teacher education degrees compared with the expectations that all primary teachers suddenly become experts on graduation, then we must understand that teachers need continued support beyond their tertiary education to develop their skills. In addition, rather than focusing on students' learning, the crowded curriculum leads them to focus on getting through the curriculum and this often leads to a 'back to basics' approach of textbooks, worksheets and lots of testing that does not create students who can problem solve, problem pose and problem find.

This is where the policy makers and school systems must come into play by providing support for high quality and sustained professional learning, and encouraging primary teachers to gain expertise as specialist mathematics teachers. We have a strong curriculum that promotes problem

solving and critical thinking both through the Proficiencies and the General Capabilities. However, teachers need to be supported by all stakeholders to use these tools and focus less on teaching mathematics as a series of isolated topics that make little sense to students.

WHAT CAN WE DO?

There are no easy solutions, but one thing is clear. We need to disrupt the stereotypical perceptions of what school mathematics is and how it should be taught. We need to support our teachers and work with them rather than against them. Parents need to actively incorporate mathematics into conversations with their children and, more importantly, display positive attitudes towards mathematics and learning. It's just not good enough to say 'I'm not good at maths.'. Let's band together and make some changes that will ultimately benefit the most important stakeholders of all, the children of Australia.

AUTHOR

Catherine is an Associate Professor in primary mathematics education, a Western Sydney University Distinguished Teaching Fellow and a Senior Researcher at the Centre for Educational Research within the School of Education. Catherine completed her PhD with Western Sydney University in 2011, her Master of Education in 2006 and her Bachelor of Education - Primary (Conversion) in 2004. In 2016, Catherine was awarded the prestigious Award for Teaching Excellence at the Australian University Teaching Awards.



The business of creativity

As a creative director for top advertising agencies in Australia and the UK, Matt Batten has amassed more than 120 awards, developed campaigns for the likes of Coca-Cola and even helped to save a life. The Western Sydney University Bachelor of Arts graduate and executive creative director for Edge shares his story with *GradLife*.

WHY ARE YOU SO GOOD AT WHAT YOU DO?

"You're only as good as your portfolio. You need to make sure you have good ideas in the first place, but also make them saleable. I'm a rare breed in that I focus on the business of creativity."

HOW DID YOU COME TO WORK IN ADVERTISING?

"I wanted to be an artist, but for every artist that makes money, 10,000 are struggling to make ends meet. I landed a job with the advertising department for Harvey Norman and from there I got a job at Saatchi & Saatchi laying out ads. Working in the city in a world-famous agency I thought, 'this is what I want to do'. I got into the top 10 of (creative training program) AWARD School, did a masterclass and then Saatchi & Saatchi made me an art director. Suddenly I had a blank pad for my ideas."

HOW HAVE YOUR STUDIES AT WESTERN IMPACTED ON YOUR CAREER?

"I'm the first and only person to have attended uni in my entire bloodline and I'm so proud to have gone. The facilities at Milperra were awesome and the lecturers were inspiring, allowing all of us to explore our passion. It also gave me an understanding of other artistic

styles and that has helped me throughout my career. In advertising now, you can't have a signature style – you have to wear a lot of hats."

WHAT'S YOUR PROUDEST ACHIEVEMENT?

"I had a charity client that wanted to raise awareness about retinoblastoma – an aggressive and rare cancer that grows in the eyes of babies. The campaign demonstrated that the cancer can be detected by a mobile phone – how the eye appears in a flash photograph. It was shared by 69 million people worldwide and won lots of awards. After its run, a Melbourne mum rang a radio program saying she took a photo of her baby that diagnosed the cancer and saved its life. I don't know if I could ever top that."

WHAT MAKES A GOOD CAMPAIGN?

"When you go on a first date you don't just talk about yourself – you ask about them and that's how you get them interested in you. In the same way, a campaign needs to focus on the consumer. Part of that is understanding genuine human truths, things people can relate to, something that can blow their mind."

| Matt Batten, Bachelor of Arts (Visual Arts), 1993

MAKE YOUR MARK

Edge Executive Creative Director, Matt Batten, shares his tips for success in a competitive industry

KNOW THAT IT'S COMPETITIVE

By being aware that you're in a cutthroat environment, you'll stay on your A-game.

BE EASY TO WORK WITH

Don't make things a drama or a chore. There will be plenty of other people who are also good at what they do, but aren't a nightmare to work with.

HAVE A THICK SKIN

Businesses are very risk averse. Stand your ground, push where you can, but also understand that if someone says no, it doesn't mean they hate your idea, it's just not right for them, or they're too scared.

HAVE FUN

If you like what you're doing, you're onto a good start.

Ugly truth was Anh's beautiful breakthrough

Failing an assignment, battling chronic illness and being fired from her job became the most important turning points in scientist Anh Kim Phan's life and career. Combined, they have led her to create a line of natural skincare products and set her on a path to newfound health and vitality.

Founder and scientist at AKP Organic Skincare Labs, Anh Kim Phan travelled from Vietnam to complete a Master of Applied Science in Food Science and Technology at Western Sydney University. When she failed her first research methodology assignment because it lacked original ideas, Anh saw it as a revelation. "It was an eye-opener for me to realise that you don't simply accept textbooks are absolutely true and don't need to be afraid to express your independent ideas," Anh says.

Anh's instinct for scientific innovation has been awakened. For her thesis she developed a simple technique to measure the oxygen permeability of packaging material – a risk to a product's shelf life. This triggered an idea to put sensor cells on expensive pharmaceutical and skincare packages which are sensitive to light and heat, helping to ensure they are stored properly. Now patented, Anh was invited to present her ideas at the 11th World Conference of Food Science & Technology in Seoul, South Korea.

When she landed a research and development role with consumer goods giant Unilever Australasia, Anh realised her newfound passion for free thinking sat uncomfortably within the confines of a large corporation. In the meantime, she was battling a barrage of health problems. Trying to correct her acne, Anh had inundated her body with antibiotics, cortisone and other harsh treatments. "I was over-medicated and had destroyed the microbiota in my gut," Anh explains. "I got Crohn's disease and ended up having a mental breakdown – I wasn't absorbing the nutrition from anything I ate and the long-term malnutrition caused so many problems."

During this time, Anh was fired from her job, moved to Los Angeles with her husband and became a qualified cosmetologist with a practice in downtown LA. All the while she drew upon her science education and researched natural remedies for her ailments. From this, AKP Protocol Organic Skincare and Health Food Company was born. Following USDA organic certification requirements, AKP produces natural products free from preservatives, paraben and petrochemicals. "It is like food for the skin," Anh says. "It nourishes skin's microbiota." Along with supplements and a change in diet, Anh credits her rejection of harsh chemicals for a complete turnaround in her health. Through sharing her story via social media and word-of-mouth, Anh has established a dedicated following of customers. She plans to start selling her products to the broader market this year. "My main goal is to educate people on how to lead a natural, healthy lifestyle," she says.

**Find out more about studying science
at Western Sydney University, visit
westernsydney.edu.au/ssh**

Anh Kim Phan, Master of Applied Science
(Food Science & Technology), 2001

Photo by David Zentz Photography

Spreading *startup* success

Left-leaning, tech-obsessed and passionate about startup businesses, Western Sydney University graduate Alan Jones is not to be confused with the right-wing shock jock who shares his name.

As technology powers a new wave of entrepreneurial success, Alan is surfing the opportunities. The Applied Communications Studies graduate works as a 'startup evangelist' coaching people who want to launch technology-driven businesses. Based at startup accelerator BlueChilli, Alan believes now is the most exciting period for entrepreneurs in Australia's history. "They don't have to put stuff on ships to send it overseas," he says. "People can make software out of ones and zeroes and it can land anywhere in an instant."

Alan's enthusiasm for breaking new ground began during his uni days as one of the first communications students in what had previously been a teacher's college. "There were great opportunities to jump up and get things started," he says. For Alan, this included launching the campus' first student newspaper and helping set up its first computer lab. "It was a formative experience and helped me gain confidence to become an entrepreneur later in life," he says.

After graduating, he worked for large PR agencies and was temporarily seduced by the big end of town. "We were coming out of the peak yuppie era where it was all about having an expensive suit, a European car and Rayban Wayfarers and for a while I forgot what I was all about and went after those things too," Alan says.

This path took a turn after 1997 when Alan joined a US tech startup that wanted to launch in Australia. "This company that nobody had ever heard of became Yahoo," he says. By the time he left Yahoo in 2002,

Alan had become the product director for the Asia-Pacific region. Having made some money, he decided to pursue passion projects, from a record label to a stubby holder for baby bottles and online video startup HomeScreen Entertainment. "I love getting things done," Alan says. "I find it hard to work in large corporations where risk holds people back from experimenting. I'm much more of a fiddler."

Now that he's supporting other peoples' fresh ideas at BlueChilli, Alan continues to have plenty of his own. Last year, he was in the first team from outside Darwin to join the annual Beer Can Regatta, sailing a boat made from 5,000 plastic wine bottles. The team used the journey to raise awareness about the plight of asylum seekers. "There are people trying to get on dodgy boats and sail south to Darwin, while we were trying to build a dodgy boat and sail north to Darwin," Alan says.

With plans to focus on more social ventures, Alan also intends to increase his portfolio of startups. "We've seen so much change in tech startups between 1997 and 2017 – I can't wait to see what will be possible in 2050," he says.

Alan Jones, Bachelor of Arts – Applied Communication Studies, 1988

Fresh idea *goes* **coco-nuts**

Take three siblings with Western Sydney University Business and Commerce degrees, add a dollop of entrepreneurial spirit and a truckload of coconuts. Mix them with the power of social media and you have the entrepreneurial success story of Rose, Kaiser and Samantha Khater.

Walking through a shopping centre in 2015, Kaiser Khater noticed a trend. “Everywhere I turned, I saw coconuts – I had a gut feeling this trend might have longevity,” says the 28-year-old graduate. With his sisters, Rose, 30 and Samantha, 26, he set up a fresh coconut water stall at a market in their home suburb of Parramatta.

A POINT OF DIFFERENCE

On a whim, the trio tried decorating their coconuts with fruit and dessert toppings. “It blew up,” Kaiser says. “We went from selling 13 coconuts the first week to selling 300.” Kayter Co now sells more than 3,000 lavishly adorned coconuts weekly through event catering and festival stalls. They have provided custom branded coconuts and decadent dessert bars for a roll call of celebrities and corporations, from the Kardashians and PR queen Roxy Jacenko to *Disney*, *Seafolly*, *Topshop* and *Sephora*.

A spin-off venture – dessertboxes.com.au – offers gift boxes laden with Nutella, cronuts and macarons to rival traditional gift deliveries. Hundreds of orders are received each week and the trio has just launched a new venture, Sweet Fry, selling fried chocolate bars at markets and festivals.

BUSINESS SAVVY

Without spending a cent on marketing, the trio’s creations have sparked a social media frenzy. Whether they’re topped with cronuts and retro lollies, chocolate syringes or cookies and cream, Kayter Co turns humble coconuts into drool-worthy works of art. “We post pictures of our desserts on Instagram and they’re regrammed by almost every food blogger in the country,” Kaiser says. “We have more than 80,000 followers and have been picked up by over 50 media outlets globally.” Kaiser says the aim is to create something unique and shareable. “They’re visually very cool. That’s what the market wants.”

Good relationships with social media influencers and dessert suppliers have been essential. Kaiser credits their Business and Commerce degrees. “Western opened our minds to the world and helped us secure our first jobs which gave us the confidence to try something on our



own," he says. Each sibling has a different major, building on their complementary strengths. "Sam's focus has always been marketing and she's a born and bred creative," Kaiser says. "Rose is very black-and-white and controls the finances. I'm the middle man between these two complete opposites and piece together the new ideas and operational details. We know each other's strengths and weaknesses. We chuck our tantrums then a minute later we'll work it out."

Ticking away in the background is the trio's first business – ougies.com – an online shop for a gratitude journal they designed. Inspired by Oprah's advocacy for appreciating moments in daily life, the journals are an international hit, with close to 100 sold every week, most to overseas buyers.

EMBRACING GROWTH

Their runaway success prompted Rose, Kaiser and Samantha to establish a team of employees and drivers, a commercial kitchen and office. All this just a few months after they began in their family kitchen. "It was crazy," Kaiser says of their early days in business. "We were waking up at 4am, arranging the coconuts, cronuts and donuts and doing deliveries. We had our parents and our friends on deck. We learnt quickly that we needed to step back and employ people to work in the business, so that we could work on it."

Growing the business also meant quitting their successful corporate jobs – something their parents, both Lebanese migrants, struggled to accept. "They didn't have an opportunity to get an education so it was very important to them that we went to university and got good jobs,"

Kaiser says. "Initially they couldn't grasp why we'd leave our jobs to sell coconuts and sit at home doing things on the computer."

The proof is now in the pudding – or in this case, the coconut. There are plans to expand Kayter Co to Melbourne and Brisbane, and The Khater siblings are also considering a savory food business. "It's a 24/7 job," Kaiser says. "We're always playing with new ideas."

Find out more about studying Business at Western Sydney University, visit westernsydney.edu.au/business

Samantha Khater, Bachelor of Business & Commerce, 2013, Kaiser Khater, Bachelor of Business & Commerce, 2009, and Rose Khater, Bachelor of Business & Commerce, 2007.



FAST FACTS



Obstructive sleep apnoea (OSA) can reduce or stop breathing for 10 seconds or up to a minute during sleep.

100+

Episodes of obstruction can happen hundreds of times each night.



People with untreated moderate to severe OSA are more likely to have high blood pressure and other cardiovascular diseases.



Severe OSA may increase the risk of diabetes, heart attack, stroke or depression.

Source: Sleep Health Foundation, sleephealthfoundation.org.au

Smart shirt tackles *sleep disorder*

A research grant worth a total project value of \$10.7 million has been awarded to Western Sydney University researchers who developed a revolutionary way to diagnose sleep apnoea.

Dr Paul Breen and Dr Gaetano Gargiulo, Biomedical Engineering and Neuroscience researchers within the MARCS Institute for Brain, Behaviour and Development, have created a t-shirt that measures cardiac and respiratory function. Called *VitalCore*, the device tracks bio-data from the wearer as they sleep, helping to diagnose obstructive sleep apnoea (OSA), and monitor its treatment.

THE PROBLEM

OSA affects around nine per cent of the world's adult population and is estimated to cost the Australian economy \$21.2 billion each year. The condition caused by an obstruction in the throat which affects breathing and disrupts sleep, has been linked to an increased risk of depression and cardiovascular disease. As current diagnosis methods involve expensive equipment and often an overnight clinical stay, many sufferers go untreated.

"The shirt provided a non-invasive method of monitoring which can be done in the comfort and privacy of your home," says Dr Breen. "The fact that it's comfortable and easy to wear also means that sufferers can receive ongoing monitoring, which will in turn provide a more accurate representation of how they sleep without the use of intrusive equipment."

A SOLUTION

The idea for a comfortable, t-shirt style monitor was inspired by a chat between the two researchers about the challenges in current sleep apnoea diagnosis and monitoring.

"We had an idea of how to solve it and put something together with a few bits and pieces from the laboratory with t-shirts and things we bought," Dr Breen says. "We took it to the Innovation Office and their support has led us here."

"Ongoing monitoring of OSA provides valuable bio-data on how individuals respond to their treatment. It's currently hard to tell if treatment is effective – some people using CPAP (continuous positive airway pressure) machines need more air pressure than others," Dr Breen says. "Without that feedback, we can't give them personalised treatment. Better treatment could, in turn, tackle the high drop-off rate, with 50 per cent of sleep apnoea sufferers giving up on their CPAP machines within the first year. This may be because the air pressure is too high for them, they feel claustrophobic wearing a mask or the pump is too noisy. That's what we are trying to solve," Dr Breen says.

TEAM EFFORT

The work being done at the MARCS Institute is part of a broader collaborative effort involving Oventus Medical, Medical Monitoring Solutions, CSIRO and Neuroscience Research Australia.

Designing a quieter pump, and refining the delivery of air to the throat with a mouthguard, rather than a mask, are among the other contributions. The overall goal is to develop effective, personalised and non-invasive treatment for OSA.

Due for completion in 2020, the project was recently awarded a research grant worth close to \$3 million under the Federal Government's Cooperative Research Centres – Projects (CRC-P) program. This contributes to an overall \$10.7 million project budget.

Dr Breen and Dr Gargiulo are now incredibly close to seeing their idea become mainstream practice. Following clinical trials late last year, the *VitalCore* device is being further refined with the goal of developing it into a viable commercial product.

"This project offers an incredible opportunity to translate one of our applied research techniques into a real-world setting," Dr Gargiulo says.

"We are honoured to be part of a project that gives back to the community in the form of an inexpensive and effective device that aids this sleep disorder."

For more information about the innovative research at the MARCS Institute visit westernsydney.edu.au/marcs

Humanising business

Former brickie's labourer, truck driver and university drop-out, Dr Mark Strom is now an innovative business consultant, published author and keynote speaker.

Having reinvented himself, the Western Sydney University PhD graduate now leads transformation in schools, mining companies and other large organisations through his role as head of innovation and design at Third Horizon Consulting. According to Mark, the best starting point is an organisation's people and their stories. "I'm still surprised at how business strips out the human factor," he says. "When you value what people have, rather than mapping them against set criteria, it makes sense on every front. It makes people happy and it's smart for business to leverage individuals' strengths."

People recognising Mark's potential helped trigger his own turnaround. After dropping out of his first university degree within three weeks, Mark worked as a brickie's labourer and truck driver until he met an older gentleman who appreciated his bright, inquisitive nature. It was the classic tale of someone taking an interest

in your story – he said "you probably do have a brain – why don't you study?" Encouraged, Mark completed an undergraduate degree in theology, philosophy and history before furthering his studies at a graduate school in the US. When he failed an exam for criticising the question rather than answering it, he caught the attention of a kind professor. "It was probably a combination of brashness, arrogance and youth, but there must have been something that made this fellow think I had potential," Mark says. "He introduced me to his colleagues who became my mentors for the next three years."

Mark went on to complete a PhD at Western on the history of ideas, linking his interest in philosophy and history with contemporary concerns around leadership. "Being able to take a multidisciplinary approach attracted me to Western Sydney University," says Mark. "When you look at questions of ambiguity and

complexity in business, philosophy and history show us that it's not about looking at the problem, it's about how we position ourselves in relation to it."

Since his bold critique of an exam question in his youth, Mark continues to challenge convention as a business consultant. Engaged recently to help Sydney Trains improve their customer service, he encouraged them to ditch typical customer service guidelines and instead seek insights from their best frontline staff. "In a lot of ways, we've never moved on from the old school project when we filled up a piece of cardboard with whatever information we could find on a topic," Mark says. "We fill PowerPoint presentations and vision statements with best practice, what we think we should be saying. When you take the time to work with people and have robust conversations, that's when you get real, positive change."

HOW TO ASK GROUNDED QUESTIONS

Consultant Dr Mark Strom says the best business solutions come from asking the right questions. These are his examples of how to re-frame typical management questions to bring people and context to the fore.

- From "what culture do we need?" to "of whom are we proud?"
- From "what products can we make?" to "how can we enter our customer's experience?"
- From "what's our engagement strategy?" to "what fuels our pride? What kills it?"
- From "what were the key points in our discussion?" to "what idea did we just avoid, sideline or dismiss because we are too afraid to ask, say or hear it?"



Dr Mark Strom, PhD 1997



Peter Moller, Bachelor of Applied
Science (Systems Agriculture), 1987
Photo by Melanie Desa

Innovation-driven AGRICULTURE

Western Sydney agriculture graduates have played an important role around Australia and globally for many decades, but the future has never been brighter.

As farmers face the twin challenges of climate change and a growing global appetite for food, technological innovation is playing an increasingly important role in agriculture. Australia's agriculture sector is set to almost double over the next 15 years, becoming a \$100 billion industry, according to National Farmers Federation predictions. Globally, booming populations and rising prosperity will require food production to increase by 60 per cent by 2050.

Climate change and its impact on food production is adding to concerns around food security and sharpening the agricultural industry's focus on better managing our scarce natural resources. Global venture capital in agricultural technology, or Agtech, is already worth \$3 billion per year and this figure is growing rapidly.

My own Agtech journey began ahead of the rush. In 1990, four years after graduating from Western, I created my first startup business. Using a manual device to measure soil moisture, and processing this with a HP programmable calculator, my business delivered data to irrigators to improve yield, quality and water savings. The data gave farmers a predictive date of when, and how much they'd next need to irrigate.

I went on to co-found an Agtech business which developed a radio-connected soil moisture probe. The C-Probe played a significant role in helping to transform irrigation management for the cotton industry in the 90s, reducing water use whilst increasing yields. After gaining 80 per cent of market share, we launched AgWISE, one of Australia's first cloud-based data services in irrigated agriculture back in 2000. I then spent six years in California, developing our North American market. In 2006, we introduced a new soil probe using the latest manufacturing technologies, allowing us to move into other markets including turf irrigation for golf courses and council open space.

I have spent the last six years leading the introduction of a data-driven solution to transform surface irrigation for cropping systems. Using a cloud-based platform to interpret real-time field conditions from smart sensors and connected devices, this solution is capable of doubling crop productivity from the same volume water and increasing application efficiency of surface irrigation historically considered to be inefficient.

Innovation and entrepreneurship are at the core of everything I have done in my career since graduating, and Western was a key enabler for my journey. The toolkit I received from Western has helped me transform irrigation management through a combination of science, technology, data and strategic management. Mine is just one story of a Western graduate adding to the sustainable production of food, fibre and beverage. As the pressure on food production mounts, there will certainly be many more.

New campus unveiled

Business education has received an innovative shake-up with the opening of Western Sydney University's flagship Parramatta City campus.

TIME TO RETURN

For graduates considering further business studies, the new Parramatta City campus provides a strong incentive to enrol.

Along with its state-of-the-art facilities, it offers an active style of learning through postgraduate courses ranging from operations management to logistics, marketing and human resources. "We welcome people from all sorts of career backgrounds and previous undergraduate degrees," says Professor Sara Denize, Deputy Dean (Academic and Operations), School of Business. "Our Executive MBA is designed for everyone from an engineer to a nurse, or someone from the arts."

Postgraduate business studies are suitable for individuals at various points in their careers, whether they want to take the next step up, or are fresh graduates wishing to build on their job-ready skills. "There are fantastic programs for all types of graduates who want to deepen their business knowledge," Professor Denize says.



Designed for interactive learning, the high-rise Parramatta City campus has replaced lecture theatres with a range of flexible, high-tech learning spaces. Since welcoming its first cohort of students in January, it has become the base for the School of Business, also providing postgraduate courses from schools in complementary areas. "Creating a campus with world-class learning spaces affords amazing opportunities for students," says Professor Denize. "The campus is also an expression of the aspirations for the School of Business and the University."

The revamped school has sidelined traditional lectures in favour of active classroom learning. Students now spend just a third of their time in lectures, which can all be accessed online. "The days of sitting in large theatres being just a number are gone," Professor Denize says. "We're spending less time on the routine dissemination of knowledge. Students are in the classroom actively engaging with teachers and students. It's more of a work-like environment. They work on things that enhance their learning outcomes – the tricky questions, tough problems and application of theory to the real-world context."

Recognised by a global architecture watch list for its leading instructional design, the new campus sits at the heart of Parramatta CBD, moments from the train station. Based in the first of a series of buildings within the landmark Parramatta Square development, it will be surrounded by the headquarters of big banks, government organisations and some of the world's largest financial services firms. Having big business employers on its doorstep is another plus for students, says Deputy Dean (International, Accreditation, LaunchPad), School of Business Professor Nigel Garrow. "It physically brings us much closer and makes a big statement about how close operationally we want to be with a wide range of businesses and organisations," he says. "Students will be able to leverage these relationships and get a much richer business-based experience."

With international students comprising about 20 per cent of the School of Business cohort, the state-of-the-art building and its central location add to the school's global standing. It is also in the process of securing international accreditation. "The business school market is globally very competitive and this new campus enhances our position in the marketplace," Professor Garrow says. "The timing is also significant as the whole region is undergoing significant investment activity."

Find out more about postgraduate study, visit westernsydney.edu.au/sgsm

CONNECTIVITY

Strong WiFi and convenient plug-in points enable wireless working from anywhere in the building. In place of a traditional computer lab, students can log into a virtual lab and access a range of software packages. This includes Zoom desktop video conferencing which enables stable, face-to-face collaboration with people anywhere in the world.

LEADING DESIGN

The result of an international competition won by the firm Architectus, the campus has a 5 Green Star rating and Education Design v1 rating.

FLEXIBILITY

Shared learning spaces can be reconfigured to accommodate all forms of group work and support the School of Business' focus on collaborative learning and teaching. Sophisticated microphones in the ceiling take the focus away from the front of the room, amplifying a speaker's voice from wherever they are sitting, standing or walking. Whiteboards surround the classrooms and have been given a high-tech twist, with cameras enabling their content to be displayed on screens. Computers on wheels are available for group work pods, allowing students to share information from their own devices with their group or the entire class.



Tower of INNOVATION

There are many reasons to get excited about the new Western Sydney University Parramatta City campus. Here are some highlights.

STUDENT EXPERIENCE

Digital wayfinding stations guide visitors around the building and provide real-time information on when the next campus shuttle bus will arrive, along with other public transport information.

The campus also offers support from Disability Services, the Library Hub, Counselling and IT. A digital queue-less system enables students to secure their place via their devices, without having to line up.

24/7 HUB

Just steps away from Parramatta train station, the 24/7 campus is a convenient destination for after-hours study and group work for students from across the University. The selection of spaces includes video conferencing and meeting rooms, private study rooms, nooks, group social spaces, kitchens on every floor and media rooms. When classrooms aren't booked for teaching, students are welcome to use them for learning.

FUTURE-PROOF

While the Parramatta City campus was equipped with a host of cutting-edge technology from day one, a longer-term masterplan has more exciting developments in store. "We'll be rolling out developments over the next couple of years and throughout the building's lifespan," says Deputy Chief Information Digital Officer, Sarah Chaloner. "Often energy peters out after a new building has been unveiled, but our focus is not just on the wedding day – it's about the marriage."

Leading the digital transformation

Paul Robson landed his first job at an on-campus interview when he was a Western Sydney University student. The Bachelor of Commerce graduate hasn't sat still in the 20 years since and is now president of Adobe Asia Pacific.

Along with leading Adobe's business across the Asia Pacific, Paul is a spokesperson for digital transformation more broadly.

"I advise CEOs of Asia Pacific's biggest companies on dealing with digital disruption," says Paul. "I work with government on digital regulation and speak to boards about why investing in digital technology is so important." Paul is also interested in the small end of town, showing startups how technology can give them a competitive edge compared with big business. "In the old days, there were massive barriers to entry for competition, but they have been demolished by technology," he says.

A fast-moving industry is a fitting match for Paul, who rose through the ranks at Phillips and Compaq before becoming, at the time, the world's youngest Hewlett-Packard vice president and general manager at the age of 33. At Adobe, he has led a shift to subscription-based pricing and helped introduce the marketing cloud powering some of the world's biggest websites. "You can fast-track your career in IT," says Paul. "Look at Google, Facetime, Instagram – all these companies didn't exist 10-15 years ago."

Paul is also the founding director of successful online startup, Wedding Gifts Direct, which he developed in 2003 with his wife – also a Western Commerce graduate. After attending a wedding in London, and having to transport a gift there, they decided to develop an online gift registry. "We wrote a business plan on the return flight," Paul says.

They sold the business five years later but Paul continues to embrace side-projects, sitting on the board of early parenting organisation Tresillian, the Association for Data-Driven Marketing & Advertising (ADMA) and the advisory board for startup investment group Alchemy Ventures. "I made a decision to pick up these positions to increase my exposure to the business community, but also to give back as a coach and mentor," he says.

TECH EVOLUTION

Paul Robson, President of Adobe Asia Pacific, outlines the technological mega-trends transforming business and life across the globe.

MOBILITY

People in emerging markets are doing everything on mobile devices, far more than in Australia. There are students writing their thesis on mobile phones using a keyboard.

ARTIFICIAL INTELLIGENCE

Machine-based decision-making is going to have a huge impact, from deciding what advertising you see on TV, to a machine allocating seats on a plane.

VIRTUAL REALITY

You're now able to immerse yourself in another world through technology, whether you're gaming or using goggles to walk through a house you're designing.

AUGMENTED REALITY

Here's where the digital and real world come together – like in *Pokémon Go* – you can hold up your phone and see imaginary things in a real setting.

DIGITAL DISRUPTION

Some of the world's biggest brands are being blindsided in a matter of weeks by startups with less than five employees.

Paul Robson, Bachelor of Commerce - Marketing, 1997



“My degree opened all the doors. I studied space with a focus on biology, and that combination really made things click in my mind. For space travel to work, we need to make sure humans, plants and animals can survive there.”

LISA STOJANOVSKI, BACHELOR OF SCIENCE (ADVANCED SCIENCE) (HONS), 2016

FAST FIVE EXTRATERRESTRIAL FACTS

- 1** Both the Australian outback and the Martian surface are famous for their dusty red soil. The Martian soil also contains 'opaline silicates' - which we have in the outback in the form of opals. There could be opals on Mars!
- 2** Fairy bread would never be allowed in space. Both the sprinkles and breadcrumbs could fly into people's eyes, or into sensitive machinery.
- 3** Vegemite has never flown in space. Its high salt content would also make it an unlikely choice. Sodium is retained in the body during spaceflight and could contribute to vision problems and bone loss.
- 4** The largest mountain on Mars, Olympus Mons, is 11 times higher than Mount Kosciuszko.
- 5** The Martian atmosphere is 96% Carbon Dioxide, but is only 1% the pressure of Earth's atmosphere.

Lisa's MARS mission

A Martian gardener, space educator and aspiring astronaut, Lisa Stojanovski took her first steps towards extraterrestrial life at Western Sydney University.

Nothing can hold Lisa Stojanovski down – not even gravity. The Bachelor of Science (Advanced Science) (Hons) graduate hopes to become Australia's first female astronaut and dreams of moving to Mars.

"I tell people I plan to die on Mars," says Lisa, who happily calls herself a "huge nerd". She also calls herself a Martian gardener and spends her spare time researching ways to grow food on Mars. This work earned her an Emerging Space Leaders Grant and a ticket to the 2016 International Astronautical Congress in Mexico. "Life on Mars is totally feasible if we have the right vision and pursue the science and engineering we need to get there," Lisa says. "We've been exploring this world for so long – Mars is the next logical step."

As a travelling science presenter with the *Shell Questacon Science Circus*, Lisa shares her passion for all things space with children in regional towns across Australia. She also hosts a monthly YouTube space news program for US channel TMRO and aims to spread enthusiasm for space and STEM (science, technology, engineering and mathematics) subjects. "A lot of kids have great curiosity about the world around them, but as they become teenagers it gets stripped away," she says. "Athletes and movie stars get a lot more time in the media than scientists and inventors and sometimes science is presented

in a boring way. I try to tap into kids' natural passion for science and show them how it can be fun."

The Seven Hills raised scientist credits her Western studies, aided by an Academic Excellence Scholarship, for her career opportunities. "My degree opened all the doors," she says. "I studied space with a focus on biology and that combination really made things click in my mind. For space travel to work, we need to make sure humans, plants and animals can survive there."

Science was a natural choice for Lisa, whose space obsession began when she was eight. "My dad gave me this huge book about space and even though I struggled to carry it, I read it from cover-to-cover and absorbed all the knowledge and wonder," she says. When a lunar eclipse occurred shortly afterwards, Lisa set herself up in the front yard with a camping chair, telescope and diary. "Neighbours passing by asked what I was doing so I started telling them all about space and it just grew from there," she says. Waking up in the middle of the night to watch satellite launches live over the internet became routine, and Lisa has also travelled to the US for the full effect.


She is now counting down the days until applications open for the Mars One crew, and is on the shortlist for a NASA simulation. This

would see her spend eight months living in a dome on a Hawaiian mountainside alongside five other space hopefuls, in conditions that resemble a Mars settlement. "This would show me what it's like to be in psychological isolation – with a 20 minute delay to communicate with family and friends, not being able to go outside and breathe fresh air or pop to the shops," Lisa says.

In her daily life, Lisa views everything through the lens of eventually moving to Mars. "I don't like to have a lot of belongings and try to live like a nomad," she says. "My family and friends would prefer for me to stay on Earth, but they also know how passionate I am about going." Until that dream spot on a Mars mission comes up, Lisa is pinning her astronautical hopes on Australia partnering with the European Space Agency and on commercial space travel taking off. But she's also philosophical about her prospects. "If I don't get to pursue my dream of going into space, I'll keep taking what I've learnt, sharing it with kids and inspiring them," she says. "If I can make that journey into space easier for just one kid, it will all be worth it."

Keep up to date with Lisa's monthly space news program on the US channel TMRO, visit youtube.com/TMRO

Saving national icon with the power of poo



One koala's waste could be another's salvation, as researchers from the Hawkesbury Institute of Environment (HIE) work on a koala inoculation made from the excrement of their cuddly counterparts.

Almost 40 per cent of koalas die when they're relocated and feed on unfamiliar eucalypt species, but inoculating them with faecal microbes from existing populations could provide the solution. "There's a lot of power in poo," says PhD student Kylie Brice. "When overpopulation events happen and we need to move koalas, we hope to take diet-specific

microbes from koalas at the relocation site. From this, we can create individualised therapy to prepare koalas before they move, hopefully enabling them to cope with the diet change much faster."

Faecal inoculation could also improve outcomes for koalas who require rehabilitation, whether from bushfire-related injuries or road accidents. "Carers try to match their diet as closely as possible, but koalas' gut microbiota does get disturbed when they go into care and can be very different by the time they're released," says Kylie, who completed her PhD in April. Eucalyptus, like other plants, contains chemical defences which can be toxic to animals when unfamiliar. "With other animals, gut microbiome

have been found that enable the host to eat toxic plant chemicals," explains Kylie.

The development of a faecal inoculation is based on Kylie's initial discovery that koalas have differing gut microbiome depending on where they live and the eucalypt species they eat. This came from comparing the faecal samples of koalas living near the Blue Mountains, which feed on diverse eucalypt species, to others from Victoria which eat only one species. "They do share a minimal core microbiome, but a lot of it is unique which seems to be driven by diet, geographical and environmental factors," Kylie says. Along with lab-based analysis, this research involved lots of leg work, with researchers tracking koalas and collecting their

Michaela Blyton, Kylie Brice, Ben Moore,
Hawkesbury Institute for the Environment

FAST FACTS



<1%

Koalas are among less than one per cent of herbivores that specialise in eating only one plant species.



Listed as vulnerable to extinction in NSW and Canberra, Koalas are overabundant in Victoria.



Koalas feed mostly at night and largely rest during the day, moving from feeding trees to roosting trees.

eucalyptus-scented droppings fortnightly for seven months. "We had radio tracking collars on them, but they still aren't easy to find," Kylie says. "They don't poo on cue so we had to put out a mat and check it every 15 minutes. We'd put the samples on ice, take them back to the lab and extract the DNA."

Research relating to gut microbiome has gained momentum in recent years, with wide-ranging implications for animals, humans and the environment. "There are faecal banks and people are having faecal transplants to help inflammation in the bowel if they are lacking certain bacteria in the gut," Kylie says. "There's research being done on the impact of gut microbes on diabetes, obesity, how it can

influence behaviour and how it may be involved in Parkinson's and Alzheimer's."

Work is also being done on introducing specific microbes to cattle to reduce their methane emissions. According to CSIRO research, cattle produce more than 12 million tonnes of carbon dioxide each year, contributing to a significant proportion of global greenhouse gas emissions. "The wallaby doesn't produce methane, so they're looking at how they can alter the gut microbiome of cows for a similar result," Kylie says.

Koalas are a good model species for research in the gut microbiome area because of their eucalypt-specific diet and Kylie hopes her

team's research will contribute to deeper knowledge in the field. "Less than one per cent of herbivorous mammals have dietary specialisation," Kylie says. "Our diets are so varied, but with koalas we're looking just one to 15 species of eucalypt in their diet and they already show big differences in their gut microbiota."

Find out more about the innovative research projects at the Hawkesbury Institute for the Environment, visit westernsydney.edu.au/hie

Kylie Brice, Bachelor of Science (Hons), 2012

Innovative leaders & entrepreneurial success



From corporate corridors to the red earth of the outback, Buddhist monasteries to African fire ceremonies, alumnae Deb Lange has learned from and led with some of the world's most innovative minds. Deb joins *GradLife* to share her insights on what success means and how innovative leaders and successful entrepreneurs are born.

To find out more of the professional development courses offered by Deb Lange, please visit deblange.com

Success – we all want it and it means different things for all of us. No matter what success means to us, there are some common characteristics for people who wish to be innovative leaders and successful entrepreneurs.

A LIFELONG EXPERIENTIAL LEARNER

Learning through our experience on and off the job is critical to being innovative and successful. There are no failures, only opportunities to learn and to do something differently for a different experience and outcome the next time.

'Work' becomes 'play' to the innovator and successful entrepreneur. There is little sameness. Whilst some may follow the same thread of knowledge for over 40 years or more, the warp and the weft are varied and create a colourful multi-media type tapestry of new knowledge. Others have new beginnings again and again and again, but they make interconnections with varied disciplines in unconventional ways that allow new knowledge to emerge.

PASSION FOR OUR PURSUITS

The successful entrepreneur is passionate to generate knowledge that will make a change and improve lives and society.

When people love their work, they are energised, full of life and possess an adventurous spirit, explorers of a new kind who chart new maps, for new territory so others may follow and create their own maps.

I have made both incremental and transformative changes to my work over 25 years of being an entrepreneur. I have worked across industries and business from international large business, to small business, to family business, to both the public and corporate market. This diversity has provided me with rich experience to transfer knowledge from one area to another and to bring new insights and questions from working in unfamiliar territory.

PERSISTENCE

We need to be a part of creating the change in the world if we are to be successful. At times our ideas can be too far ahead of people, at other times our ideas hit the spot, but, no matter what, persistence pays off. If our ideas are 'right' for the time, early adopters will embrace them and adapt them so they become more widely adopted. We need to be willing to let our ideas gather their own momentum in the world, to sow a seed and allow it to germinate and to have a life of its own.

My advice is to keep learning, creating and love what you are doing. If you are waking up in the morning excited about your work it is likely you will be innovative and successful in your field.

Deborah Lange, Master of Science (Hons)
Social Ecology, 2000



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A photograph of the Western Sydney University Parramatta City Campus, a modern glass and steel building with multiple stories, situated on a city street. The building is illuminated from within, and the street in front has traffic lights and some trees. The sky is overcast.

OUR NEW INCUBATOR FOR FUTURE BUSINESS LEADERS.

PARRAMATTA CITY CAMPUS.

You could easily mistake Western Sydney University's brand new cutting edge campus for a world-class business headquarters. Indeed, our new Parramatta City campus is not a new corporate HQ, but we believe it will give you the very best chance to get there.

Western offers 14 storeys of deep knowledge, encased in 5 green star steel and glass. A beacon full of new ideas, for a Business School full of new ways of thinking.

Our digitally-infused teaching and research spaces provide unparalleled opportunities for up to 10,000 students. Existing within a technology-rich environment, anchored by a vibrant community.

As a bonus, we are easily reached via multiple forms of public transport. Our dynamic hub sits at the core of the Sydney of tomorrow – a rapidly evolving business world located across Western Sydney and beyond.



WESTERNSYDNEY.EDU.AU