Three University of Melbourne researchers have received Australian Research Council (ARC) Laureate Fellowships to further their research into disease and security, the national health system, and the origins of the universe. Silvia Dropulich talks to Professor Lyn Yates, Pro Vice-Chancellor (Research) and the three winners about the awards.

Each of the new Fellows is passionate about unexpected ideas that are original and can improve people’s lives. And they all have rich and varied interests outside their research areas from rock-climbing and aerospace to the Australian bush, railways and photography.

With such full lives and intense academic interests, the next great ideas are almost bound to be just around the corner.

Pro Vice-Chancellor (Research) Professor Lyn Yates believes all research achievements rest on having fine researchers.

“This University is proud to host researchers of leading the way in research research. The Laureate Fellowships are the flagship awards of the Australian research Council (ARC). They are designed to recognize and retain some of the very best researchers to work in this country, and to build ongoing research programs and teams of the highest quality.

Melbourne’s Professor Peter Hall (Department of Mathematics and Statistics), Professor David Studdert (Melbourne Law School and School of Population Health) and Professor Stuart Wythe (School of Physics) were among 17 new Fellows announced by the Minister for Innovation, Industry, Science and Research, the Hon. Senator Kim Carr at the University of Melbourne in August.

None of the three award-winners expected to win an ARC Laureate Fellowship. Their journeys culminating in the award reflect their desire to up-and-coming researchers about persistence and originality.

Professor Hall observes that for him, only later in his life he felt it become feasible to be supported by an ARC Fellowship. "I have always believed that one’s work is more influential than one had originally thought. This is how ARC Research Fellowships work."

All three Melbourne winners have sage advice for up-and-coming researchers.

"Don’t give up – learn from your failures, and follow your instincts passionately," says Professor Hall.

ARC Federation Fellow for Mathematics and Statistics.

"Always believe in the importance of your work. Never be afraid of asking big questions."

Professor Wythe will use the award to make important advances in statistics, leading to new statistical methodologies.

"Ignore disciplinary boundaries as much as you can."

Professor Studdert received the Fellowship for his proposed development of new methods in modern statistical science. Statistically challenging problems today involve answering many more questions than we have useful data to answer.

"There is an increasing quantity of data, but in many cases the useful information it contains is distributed very sparsely," Professor Hall explains.

"The plan to make progress in the analysis of data of this type. The data arise in areas such as genomics, where the aim is to elucidate causes of disease, and security for the community, such as testing for molecules in the atmosphere which may indicate the presence of bio-weapons."

Professor Studdert received the Fellowship for the way the system worked than in the way the system worked in the details of particular cases. It is that impasse that led him to public policy.

"I have been very fortunate in my career to have received excellent advice along the way."

Professor Wythe never imagined becoming an ARC Fellow. None of the three award-winners expected to win an ARC Laureate Fellowship. Their journeys culminating in the award reflect their desire to up-and-coming researchers about persistence and originality.

Professor Hall says research in statistical science is expensive to fund, and until the mid-1990s Australians punished above what weight international academic colleagues think of the contributions to the field.

"The research program supported by the Laureate Fellowship will help us to stem the decline that has occurred in the past 15 years, and enable him to make important advances in statistics, leading to new statistical methodologies."

Professor Wythe never imagined becoming an ARC Fellow.

"One trick to successful research is often to predict where the crowd will be working in a few year’s time. This requires good advice and some luck, I have been very fortunate in my career to have received excellent advice along the way."

Professor Studdert, ARC Federation fellow and Deputy Head of School of Population Health, observes that the most interesting answers to questions often lie in gaps or overlaps between established fields of study – places that no one has looked into before.

"Ignore disciplinary boundaries as much as you can," he says.

"Pursue the questions that excite you, and don’t be afraid of asking big questions."

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"Ignore disciplinary boundaries as much as you can."

Professor Wythe never imagined becoming an ARC Fellow.

"You gotta into academic life to follow a passion for a particular topic," he says.

"ARC Fellowships provide an opportunity to pursue this topic to its fullest potential, and I feel very fortunate to have been given the opportunity to make the most of my interest in astronomy."

"Neither did Professor Studdert ever imagine becoming an ARC Fellow."

"It was crooked path,” he says. “And for a long time I felt like I was only as good as my last paper.”

As a young lawyer working at a firm, Professor Studdert started to become more interested in the way the system worked than in the details of particular cases. It is that impasse that led him to public policy.

"But I have got from there to my career today is all about mentors," Professor Studdert says. "Most people are lucky to have one great mentor in their professional life; I’ve been blessed with three."

The first mentor was James Murray, a partner with whom Professor Studdert did his articles. The second was the late Marie Tahan whom David worked with when she was Victorian Health Minister. And the third mentor was his PhD supervisor, Troy Brennan, whom David describes as a sort of unconventional genius.

"Ignore disciplinary boundaries as much as you can.

Pursue the questions that excite you, and don’t be afraid of asking big questions."
Beyond the age divide

Cate Green, second-year Arts undergraduate and President of the new mature age student group, 23+, explores the education benefits of student age diversity, for both young and old.

Taking the initiative

Frank Larkins, Professor of Chemistry at the University of Melbourne, has been named as a leader in the new discipline of research on the chemical basis of music, after years of extensive studies using advanced analytical techniques. Larkins has made significant contributions to the understanding of the chemical processes underlying musical sounds, including the role of molecular vibrations in the production of musical notes.

The path to recognition

Larkins began his research in music chemistry at the University of Melbourne in the early 1980s, focusing on the chemical aspects of musical instruments and the physics of sound. His work has since expanded to include the study of musical acoustics, the chemistry of musical materials and the development of new musical instruments.

Larkins’ research has been widely cited and his findings have been applied in the development of new musical instruments and technologies. His work has also been influential in the field of music education, where the understanding of the chemical basis of music has provided new insights into the development of musical ability.

Larkins says that his research has opened up new avenues for collaboration between scientists and musicians, and has provided a new perspective on the role of chemistry in the arts.

“Music is a world of creativity and imagination, and our research is about understanding the molecular processes that underpin the sounds we hear,” Larkins says.

“By understanding the chemistry of music, we can create new musical instruments and technologies that can enhance the learning and enjoyment of music.”

Larkins’ research has been supported by several grants from the Australian Research Council, and he is currently working on a major project to develop new musical instruments based on the chemical properties of musical materials.

The impact of research

Larkins’ research has had a significant impact on the field of music chemistry, and has been widely recognized for its excellence. He has received several awards for his research, including the prestigious Australian Research Council medal for his contributions to music chemistry.

“Research is about understanding the world around us, and our work on the chemical basis of music has provided new insights into the world of sound,” Larkins says.

“It has opened up new avenues for collaboration between scientists and musicians, and has provided a new perspective on the role of chemistry in the arts.”

Larkins’ research has also had a significant impact on music education, where understanding the chemical processes underlying musical sounds has provided new insights into the development of musical ability.

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Big change big ideas bright new thoughts

The new Centre features dedicated rooms for digital X-ray, a full operating theatre, a lab and a clinical teaching space.

The Centre is open only after normal business hours, on Monday to Friday from 8am to 2pm and 24 hours on weekends and public holidays. This way we are simply enhancing the access the care we can offer to pets as well as to their owners, a clear example that our pets are a very important part of the family.

The Centre is open to all animals in need of care, whether they are domestic or exotic animals such as snakes and lizards.

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THE UNIVERSITY OF MELBOURNE

Round-the-clock pet care

Local veterinarians in Geelong recognised the need for a dedicated emergency centre in the area and approached the University of Melbourne’s Veterinary Hospital in Werribee. The result is the Geelong Animal Emergency Centre.

Sally Sherwen

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From drug delivery to invasive plants, the University of Melbourne is home to the next generation of research leaders thanks to a State Government scholarship scheme. By David Scott.

A kb

Bent Einstein believed that if you knew where you were going it wouldn’t be called research. Advanced yet amusing, once researching that was all about creating new knowledge.

And for three young PhD researchers at the University of Melbourne, their time in the lab has proved to be just as Einstein and Armstrong had intended.

“Research work is overwhelming, the moment you get bored you should stop working and have a walk to make up your mind,” says Francesca Cavalieri, an Italian PhD exploring new drug delivery methods and applications in the School of Chemistry.

“You should always work on the novelty and innovation of your research work, pushing to get new ideas. The hardest thing is doing an original work and performing experiments for it using reliable methods. How to do your own visionary approaches in my research, curiosity plays an essential role in my daily research work,” says Ms Cavalieri.

Ms Cavalieri was one of three recipients of the 2012 PhD State Government scholarship. The $300,000 project is supported by the Victorian state government scholarship and implemented at the University of Melbourne with a young investigator (Dr Francesca Cavalieri).

“My academic and research choices have no impact on the surrounding environment, but I sincerely hope we will have a chance to pursue my dream of undertaking a PhD work. Which will allow me to attend a number of international conferences and share these with the labs,” Ms Cavalieri said.

“Bringing the nanodevices for assessment in clinical trials requires many years, but I sincerely hope we will have a chance to pursue my dream of undertaking a PhD work,” Ms Cavalieri said.

Kangaroo genome hops into history

The Australian tammar wallaby is the first member of kangaroos to have its genetic makeup sequenced. Rebecca Scott reports.

University of Melbourne researcher Dr Dr bistribeitti, a pastoral fellow with the Department of Zoology, was the first to report that the tammar wallaby is the most closely related to the Australian kangaroo. The Tasmanian devil (Sarcophilus harrisii) is the next closest relative, as it is in the same genus. The tammar wallaby is the only remaining species of the genus Macropus, and is considered to be the exact species that the Australian kangaroo evolved from.

The tammar wallaby has provided new insights into marsupial development, evolution and the immune system.

“Importantly, the discovery of new genes involved in immunity, development and the immune system provides a basis for understanding and interpreting the sequence,” she says.

The $300,000 project is supported by funding from the Fisheries Research and Development Corporation (FRDC) and the Australian Genome Research Foundation.

“The rules are detailed and often change from year to year, so you need to keep up to date,” she says.

The research looks closely at the two species of proteins that are required for the tight regulation of cell growth and cell division. Oligomeric and tumor suppressor genes. Tight control of cell cycle is essential to prevent cancer progression, which is one of the key steps in cancer development.

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Fourth in the world for graduate recruitment

The University of Melbourne is equal fourth in the world for graduate recruitment, according to the latest QS World University Rankings. By John<br>

A survey of 13,000 employers around the world ranked only two universities ahead of Melbourne for graduate employability, both in the top five. The overall rankings released earlier this month also show Melbourne is the fastest-rising Australian university in the Group of Eight, moving up seven places to 31st in the world. It is also ranked second in Australia, five places behind AIB.<br>

Melbourne Vice-Chancellor Professor Glyn Davis said: "It is a significant result which confirmed the quality of the University’s curriculum and research programs and underscored its growing international reputation and academic standing.<br>

Professor Davis also said the result was a result of the hard work, dedication and commitment of the students, staff and the University’s alumni.”<br>

The QS ranking comes weeks after the University of Melbourne was named the number one university in Australia by the Times Higher Education’s Academic Ranking of World Universities (ARWU).<br>

Harnessing our great research strengths

Interdisciplinary research provides a powerful solution to some of the world’s problems. Silvia Dropulich spoke with Deputy Vice-Chancellor (Research), Professor James McCusky, about Melbourne’s commitment to encourage interdisciplinary research that addresses complex societal challenges.<br>

"One of the greatest strengths of Melbourne’s research is its ability to cross disciplinary boundaries. This is reflected in the University’s strategic focus on interdisciplinary research as a key driver of excellence and impact and, in particular, its emphasis on interdisciplinary seed funding and the Melbourne Institute for Indigenous Development as central mechanisms for fostering interdisciplinary research," Professor McCusky said.<br>

Interdisciplinary seed funding is available for projects that require a combined approach to addressing complex societal problems. The 2017-18 Interdisciplinary Seed Funding Grants Program, for example, supported 28 projects, and 24 projects in 2018. Each of these projects is consistent with the broad research objectives of one or more of the Melbourne Research Institutes or designated (emerging) areas of focus within the University. For the 2019-20 program, 101 applications were received for 285 projects.<br>

In an interview with Silvia, Professor McCusky spoke more broadly about the University’s commitment to interdisciplinary research. "Melbourne is the University of Melbourne. Our focus is on our unique place in the world. We have an obligation to address complex problems that are insoluble by any single field, working together to solve complex problems by bringing different perspectives to a single problem," explains Professor McCusky.<br>

"In addressing the complex problems facing society, there is an increasing awareness these problems need interdisciplinary approaches that bring together different perspectives to a single problem," explains Professor McCusky. Professor McCusky is an expert in the interdisciplinary approaches to understanding and combating climate change, and has led a number of projects in this area. "Interdisciplinary research is not just about combining different perspectives, it is about drawing on the strength of each field to achieve better outcomes. This is what we are doing with our interdisciplinary research," Professor McCusky said.<br>

"One of the great strengths of interdisciplinary research is that it brings people from different disciplines together to work on problems that are too complex for any single discipline. This is what we are doing with our interdisciplinary research. We are bringing different perspectives to a single problem, and that is what makes our research so powerful," Professor McCusky said.<br>

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A fascination with economics

Alumnus Rod Sims, (BCom Hons 1972) who replaced Graeme Samuel on 1 August 2011 as Chairman of the Australian Competition and Consumer Commission (ACCC), brings a rich background and a new role. He is profiled by Associate Professor Geoff Burrows, Faculty of Business and Economics.

Rod Sims, one of the last of our time, of course, fascinated with economics and politics from a very young age. He spent hours in the library at the University of Melbourne, learning about the world and its workings.

This month’s prize is

The latest episode of View takes a behind-the-scenes look at the making of a feature film, and looks at the challenges and rewards of working in the film industry.

Up Close Podcast

Reinventing X-rays

Professor Katherine Fotheringham explains the physics behind X-rays and cryocooling, and how they are used to develop new tools that can probe materials at the atomic scale.

MUP Publications

This month’s issue of MUP Publications is: MUP 2000: The 20th anniversary issue of MUP. To order, visit www.mup.unimelb.edu.au or call 1300 130 897.

View’s Industrial water policy is not just a good idea, it’s a necessity.

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Collingwood, A Love Story

Collingwood, A Love Story is a compelling and deeply personal account of the illustrious football club, Collingwood Football Club. Written by Paul Daley, the book provides a comprehensive overview of the club’s rich history, from its foundation in 1892 to its most recent triumphs. Daley, a renowned writer and academic, weaves historical context with intimate narratives, offering readers a unique perspective on the club’s enduring legacy.

The book delves into the personalities and events that have shaped Collingwood’s history, from its early days as a struggling team to its status as one of Australia’s most successful football clubs. Daley’s insights are supplemented by interviews with key figures, providing a vivid portrayal of the club’s development and its impact on the lives of those associated with it.

Collingwood, A Love Story not only celebrates the achievements of the club but also explores the complexities of its relationships with its fans, media, and competitors. Through a rich tapestry of anecdotes and analysis, Daley offers a poignant reflection on the club’s place in Australian culture.

Join in the Chorus

The University’s engagement with the wider Melbourne music community includes academic and professional staff, students and alumni who are members of the Melbourne Symphony Orchestra Chorus. Zoe Nikkis reports from the Soprano section.

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Indigenous opera star appointed head of Wilin Centre

Internationally acclaimed Australian Indigenous soprano, Deborah Cheetham, has been appointed Head of the Wilin Centre for Indigenous Research at the University of Melbourne.

The Wilin Centre supports Australian Indigenous students at the Victorian College of the Arts (VCA) and VCA and the Melbourne Conservatorium of Music. It educates and encourages students, staff and the public to recognise, celebrate and engage with diverse Indigenous arts, artists and communities.

Mr Cheetham has forged an international career as an operatic singer, actor and composer. In December 2013, he was named as Australia’s first Indigenous Artistic Director – with the Australian Opera and Ballet, with particular expertise in the classical music repertoire. In 2018, he was appointed as the first Indigenous Artistic Director of the Australian Opera and Ballet, and subsequently named as the first Indigenous Artistic Director of the Australian Opera and Ballet.

Mr Cheetham has a distinguished career, having performed in more than 50 operatic roles across Australia and the world. He is a founding member of the Aboriginal Opera Company and has performed with many leading opera companies, including the Australian Opera and Ballet, Sydney Opera House and the Australian Opera and Ballet.

Dean of the Faculty of the VCA and Music Professor Rena Gaborov said, "It's wonderful to be able to announce Indigenous performer, Deborah Cheetham, as our new head of the Wilin Centre. We are excited by the range of artistic projects with Indigenous perspectives that Mr Cheetham will bring.

Mr Cheetham has been appointed Head of the Wilin Centre, a position he will assume from 1 July 2022. "This is a truly historic appointment," he said. "I am thrilled to be able to announce the appointment of Deborah Cheetham as Head of the Wilin Centre. She is a highly respected and accomplished performer, and I am confident that she will bring a wealth of experience and expertise to the Centre.

The Centre is committed to fostering a diverse and inclusive environment, and Mr Cheetham's appointment is a testament to our commitment. We are excited to work with him to create new opportunities and experiences for our students and alumni."
University welcomes 2011 McKenzie Fellows

The 2011 McKenzie Fellows were officially welcomed to the University at a lunch on Monday 18 July Zoe Nikakis reports.

The McKenzie Fellowships are postdoctoral awards available to outstanding recent doctoral graduates from universities outside Victoria.

The McKenzie Fellowships were established in 2008 to acknowledge the outstanding contribution made by former Dean of Science/Research and internationally renowned geneticist Professor John McKenzie.

The Fellows were selected for their potential to add value to and expand the University's collaborative research activities within and across faculties.

Dr Paul Cook was encouraged to apply for the fellowship by a member of staff who noted that his skills would be a valuable addition to the University of Melbourne with funding that was available to the McKenzie Fellowships.

Dr Cook's project is on developing new techniques to visualize the parasite Plasmodium using advanced imaging and advanced imaging technologies.

The parasite changes the red blood cell surface, causing the cells to ‘stick’ to blood vessels. If this happens in the brain, the patient can be sent into a high fever and coma and often times will die.

“Once it has invaded the red blood cell, the parasite displays devastating haemolysis, the protein that carries oxygen in the blood. It consumes around 75 per cent of the protein to make for its own growth within the cell, but it is this need that has become its Achilles heel,” Professor McKenzie says.

As the most lethal and diarrhoeal drug is artemisinin, a product of the wormwood plant. The Chinese have used wormwood for centuries to treat fevers associated with malaria. The drug becomes toxic, like setting off little cluster bombs inside the parasite,” she says.

The drug targets the haemoglobin in the red blood cell and triggers it to escape the action. This is executed by the parasites that get trapped in the blood stream which is often used when unproven drug formulas are tested, rather than what is prescribed by the World Health Organization.

“I believe that Plasmodium has developed a kind of ‘Thames and Aale’ strategy. The drug may go in, but it never leaves. It goes into a deep sleep, until just the right moment for the reptation of the patient’s skin to come down,” Professor McKenzie says.

The evolution of resistant parasites makes development of new treatments more challenging, but as quickly as it used to, a major concern.

Professor Lyn Yates says towards the eradication of the malaria parasite Plasmodium falciparum, when patients in a coma can be within 12 hours and the drug may take hours to work.

The work from Professor McKenzie’s lab has coincided with development of synthetic biology techniques to tackle the major medical problems of the 21st century.

Zoe Nikakis

Volunteering for Victoria

The Volunteer Business Practice gave postgraduate students from the Business and Economics Faculty the chance to choose free local government roles in regional parts of Victoria. Lyn Toh reports.

We last rode Victoria, 38 students in total, on a highly successful autumn 2010 Business Practice trip to the Northern Territory. The trip was described as a “once in a lifetime” opportunity and, led by Professor Susan Eton from the Business and Economics Career Centre and Dr Jenny Ruth from Economics, the program proved to be of great value for high-performing students, who not only practiced the real work experience but also the opportunity to meet new people.

“We are looking for students who have no experience or exposure to new technologies, notably enhancement of the malaria parasite, we hope to tackle the major medical problems of the 21st century,” Professor McKenzie says.

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Students make good neighbours

Kate O’Hara takes a look at how a formal partnership is creating development and governance skills in communities for students and the Carlton community.

The University of Melbourne students take on the world.

N

The University of Melbourne Students in Free Enterprise (SIFE) team is taking on the world. Literally. Laura Soderlund reports.

MUBC rowing crews blitz international competition

Crews from the Melbourne University Boat Club (MUBC) have beaten teams from Oxford University as well as from Korea and Japan to win the STX Korean Universities Cup, by Zoe Nikakis.

Great-grandmother graduates 68 years later

An 87-year-old former teacher from Woomelang in the Mallee graduated from the University of Melbourne on 13 August – 68 years after completing her education course. Caterina Mays reports.

Graduate Research Training.

Join Australia’s Best Minds

The University of Melbourne is seeking high calibre PhD students to contribute to projects at the forefront of international research.

Get to know the neighbours: signalling their commitment to a formal partnership (from left) Vice-Chancellor Professor Glyn Davis, Carlton Local Agencies Network representative Mary Parfrey and Lord Mayor Robert Doyle.

www.futurestudents.unimelb.edu.au/info/research
TUESDAY 13 SEPTEMBER 6PM SAFE AND SECURE
Children and Young People: how safe and secure are they? By Professor Makan Connolly (School of Social Sciences, Deakin University). Venue: Southbank Building Brown Memorial Lecture. Bookings: cikut@deakin.edu.au, 9224 5044, WWW.BROWNMEMORIALLECTURE.COM

WEDNESDAY 14 SEPTEMBER 6.30PM THE GREYHOUND CARE
Alcohol and the greyhound industry: a queue for the future. By Professor Virginia McConkey (School of Health and Rehabilitation Sciences). Venue: Greyhound Room, Automobile Association Building, 100 St Vincent Street, Southbank. Bookings: 9663 7999, THEA.T. 03 6867 6630

MONDAY 19 SEPTEMBER 6.30PM TWO ANCIENT CITIES

TUESDAY 27 SEPTEMBER 6.30PM PREHISTORIC CLIMATE CHANGE

TUESDAY 27 SEPTEMBER 6.30PM IMPROVISING CONCERTS
Ensemble Series 2011 at the Kallio Club. A special showcase of student improvisation, featuring original works and arrangements from the Contemporary Music Performance Department. 13 September, 8pm. Venue: The Kallio Club, Melbourne Place, Melbourne. Bookings: 9664 5777 or www.kallioclub.com

PERFORMANCES
- West Side Story presented by VCA Music Theatre
- The Orchestra of Written Instruments
- Year 9 and 10 students from Melbourne High School
- Featuring guest conductor, Dr Michael Williams
- Venue: Melbourne Recital Centre, 215 St Kilda Road, Southbank
- Tickets: $27.50

EXHIBITIONS
- School of Performing Arts
- Arts, Dance, Theatre, Visual, Performing Arts, Melbourne Recital Centre
- Melbourne Recital Centre, 215 St Kilda Road, Southbank
- Free Admission

Imposing a united state of Melbourne

CONSTRUCTING BELIEFS AND REINFORCING TRUTHS
MONDAY 19 SEPTEMBER 6PM
- The Believing Brain: how we construct beliefs and reinforce them. By Professor Michael Shermer (Founding Publisher of Skeptic magazine). Science Lecture presented in association with the Centre for Science Communication at the University of Melbourne. Bookings: www.melb. uni.edu.au. The University has used its best endeavours to ensure that the information contained in this timetable is correct at the time of release. We recommend that you contact us to confirm the details provided with the relevant faculty or department.

September Timetable Feed your intellect with a University of Melbourne Public Lecture. With local experts as well as those from across the globe you’ll find there’s always something new to discover. You don’t need to be an enrolled student and most lectures are free! For latest listings visit: www.events.unimelb.edu.au