The theme for the University Research Week this year is Building Research Capacity: Communicate, Collaborate, Connect. This theme continues on from last year’s theme and emphasises the importance of building our research capacity. The Research Week program reflects this theme in presenting addresses and papers in strategic areas of strength that exemplify the work being undertaken by our leading researchers.

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Acknowledgements

We would like to thank members of the University Research Week Academic Advisory Group for their time and involvement in the organisation of the 2012 University Research Week.

University Research Week Academic Advisory Group (AAG):
Associate Professor Christian Jones (Chair AAG), Associate Dean (Research), Faculty of Arts and Business
Professor Roland De Marco, Pro Vice-Chancellor (Research)
Professor Margaret McAllister, Professor of Nursing, School of Nursing and Midwifery, Faculty of Science, Health, Education and Engineering
Associate Professor Jennifer Carter, Head of School, School of Social Sciences, Faculty of Arts and Arts
Dr Rod McCulloch, Head of School, Communication, Faculty of Arts and Business
Dr Scott Cummins, ARC Research Fellow, Faculty of Science, Health, Education and Engineering
Dr Fraser Russell, Senior Lecturer, Biochemical Pharmacology, School of Health and Sports Sciences, Faculty of Science, Health, Education and Engineering
Dr Dana Thomsen, Senior Lecturer, Sustainability, Advocacy and Coordinator of Sustainability Programs, Faculty of Science, Health, Education and Engineering
Ms Beth Crawter, Information and Research Services Coordinator, Library
Ms Barbara Palmer, Manager, Office of Research
Ms Lyndal Kroker, Research Training Officer, Office of Research
Ms Sally Routledge, Administration Officer, Office of Research
Ms Anne Steward, Executive Officer to the Pro Vice-Chancellor (Research)
Welcome from the Vice Chancellor and President

At USC we started our institutional research life focused on the Sunshine Coast region. This, after all, was our mission as a university. We did some useful things and the members of the community with whom we became involved were happy with our contributions. This has provided an excellent launching pad for development and growth of research at the University.

The global research context, and the Australian higher education sector, have both changed a great deal in a relatively short period of time. They have become very competitive. This is happening because, like every other aspect of modern societies, research is becoming very systematised. As a result, it is much more expensive for governments and industry to fund. And this in turn causes governments and industry to favour research projects that are demonstrably significant and genuinely innovative, and are led by researchers who have proven they can deliver. This is why research funds go to the researchers with good track records who are working with colleagues at the cutting edge of their fields and is the reason why USC is working to enhance its global competitiveness in research.

We have also made an overt commitment to developing our research performance, and set targets for ourselves, through the new strategic plan and top level plans. We now have a Pro Vice-Chancellor to lead our research effort and he has dedicated resources to make it happen.

We are also ensuring we keep our heads at a time when some universities are focussing only on category one grants and high quality (formerly A*) publications. These are important to us and we must see them rise, but it is equally important for us to increase our category two, three and four income, and upper-middle level publications.

We have also committed to growth targets for research student enrolments and graduations because they are the engine room of research development and are an important part of the funding and quality equations.

I am really pleased this year’s Research Week continues with the collaboration theme established last year because it is the common denominator of all of our plans for growing our research performance. I hope you enjoy hearing stories from our researchers, right across the spectrum from students, to early career researchers and on to our most senior researchers, about our engagement with CRCs, Smart Water, NCCARF, ACIAR, industry and the community. This is where a lot of multidisciplinary research actually happens and it is a place where most of our staff and research students can make a valuable contribution.

Professor Greg Hill
Vice-Chancellor and President
Welcome from the Pro Vice-Chancellor (Research)

It is an exciting time at USC as the University experiences explosive growth in research under the impetus of key initiatives such as the Collaborative Research Networks (CRN) project, the appointment of USC Research Fellows, the recruitment of Research Fellows and Doctoral students under the auspices of the Australian Research Council (ARC), National Health and Medical Research Council (NHMRC), Queensland Smart Futures Fund, international research partnership and direct industry funding, as well as through the implementation of strategies to focus and concentrate research in fields of existing and emerging strength.

Furthermore, there are many examples of developing research in fields aligned to existing and new educational programs at USC, which are rapidly developing their human and intellectual capital in harmony with the growth and development of the University.

In my short time at USC, I have learned about the dynamic research community made up of talented and motivated academics who have done a fantastic job in building academic excellence in the University from its humble beginnings. In recent times, the targeted injection of new academic staff into areas of existing and emerging research focus has made a significant contribution to the research directions and research ethos at the University, and there is a ‘buzz’ in the development of research around the University.

Looking at the program, it is most exciting to see the many interesting research topics undertaken at the University. We have a breadth of research spanning the fields of journalism, history, human geography, computer facilitated learning, education, forestry, aquaculture, biomedical science, medical microbiology, as well as a range of other fascinating topics.

In 2012, USC has seen a continuation of its 2011 success in winning national competitive grants with the announcement of additional prestigious grants such as the award of two of the eight American-Australia Fulbright Senior Scholars hosted by Australian institutions, the award of Australia China Science Research Fund (ACSRF) grants, funding from the Australian Water Recycling Centre of Excellence, the award of a Smithsonian Institute Fellowship, along with a growth in other income sources including Cooperative Research Centre (CRC) funding and direct industry sponsorship of USC research. These spectacular outcomes demonstrate that academic excellence and innovation within the Australian Higher Education sector will be supported wherever they exist, and serve as a source of inspiration for USC to go forward and compete confidently in the national and international research arena.

The USC Research Week provides all of us with an opportunity to learn about each other’s research, so please seize the opportunity to pursue the conference theme and ‘communicate, collaborate and connect’.

Professor Roland De Marco
Pro Vice-Chancellor (Research)
Monday, 9 July 2012

Location: **INNOVATION CENTRE AUDITORIUM, USC CAMPUS**

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<th>Time</th>
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<tr>
<td>9–10.30am</td>
<td><strong>Opening Remarks</strong> Associate Professor Christian Jones, Chair, University Research Week Academic Advisory Group</td>
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<td></td>
<td><strong>Official Welcome</strong> Professor Greg Hill, Vice-Chancellor and President, University of the Sunshine Coast</td>
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<td><strong>Welcome to Country</strong> Lyndon Davis, Traditional Custodian</td>
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<td></td>
<td><strong>Welcome</strong> Professor Roland De Marco, Pro Vice-Chancellor (Research)</td>
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<tr>
<td>10.30–11am</td>
<td><strong>Keynote Presentation</strong> Professor Phil Bland, ARC Laureate, Adjunct Professor, Curtin University 'Shooting stars and the secrets of our Solar System'</td>
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<tr>
<td>11–12noon</td>
<td><strong>Keynote Presentation</strong> Professor Birgit Lohmann, Deputy Vice-Chancellor 'If we knew what we were doing it wouldn’t be called research'</td>
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<tr>
<td>12noon–2pm</td>
<td>Networking Lunch and Research Expo</td>
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Location: **CG.50, USC CAMPUS**

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<th>Time</th>
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<tr>
<td>2pm</td>
<td>Workshop Getting Published–Dr Bishnu Sharma</td>
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Tuesday, 10 July 2012

Location: **INNOVATION CENTRE AUDITORIUM, USC CAMPUS**

Faculty of Science, Health, Education and Engineering (FoSHEE) Research Day

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<th>Time</th>
<th>Session</th>
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<tr>
<td>9am</td>
<td><strong>Opening Remarks</strong> Professor John Bartlett, Executive Dean, Faculty of Science, Health, Education and Engineering</td>
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<tr>
<td>9.15–10.55am</td>
<td><strong>Presentations Chaired by</strong> Professor Helen Wallace, Associate Dean (Research), Faculty of Science, Health, Education and Engineering</td>
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<td><strong>Presentation</strong> Overview: GeneCology Research Centre – Professor Abigail Elizur</td>
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<td><strong>Presentation</strong> Increasing the affordability and availability of fresh high quality Australian seafood – Associate Professor Wayne Knibb</td>
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<td><strong>Presentation</strong> Modification of fatty acid metabolic pathway by transgenesis in nibe croaker (Nibea mitsukurii) – Mr Naoki Kabeya</td>
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<td><strong>Presentation</strong> Development of Spermatogonia A transplantation (surrogate) technology for production of Southern Bluefin Tuna (Thunnus macoyii) seed–Mr Ido Bar</td>
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<td><strong>Presentation</strong> Euphorbia peplus: from folklore remedy to clinical treatment for skin cancer – Dr Steve Ogborne</td>
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<td><strong>Presentation</strong> Evolution of extensively fragmented mitochondrial genomes in bilateral animals – Dr Renfu Shao</td>
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<td><strong>Presentation</strong> DNA designs and counteracting cocaine: Introducing molecular engineering – Dr Joanne Macdonald</td>
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<td><strong>Presentation</strong> Creating new weeds: Do stingless bees disperse Corymbia torelliana hybrids? – Professor Helen Wallace</td>
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<td><strong>Presentation</strong> Dual function of the moult: inhibiting hormone (MIH) in the blue crab gives new perspective for the established role of MIH action – Dr Michael Stewart</td>
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<tr>
<td>10.55–11.15am</td>
<td><strong>Overview</strong> Proposed Forest Industries Research Centre – Professor Mark Brown</td>
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<td>11.15–1.30pm</td>
<td><strong>Presentation</strong> Developing Myrtle rust resistant trees – Associate Professor David Lee</td>
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<td><strong>Presentation</strong> Healthy forest trees make productive forestries: an overview of pest and disease management research – Dr Helen Nahrung</td>
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<td><strong>Presentation</strong> Optimised log transport planning with FastTRUCK – Dr Luke Mirowski</td>
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<td><strong>Presentation</strong> Proposed Centre for Applied Health Innovation and Translation (CAHIT) – Dr Florin Oprescu</td>
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<td><strong>Presentation</strong> Proposed Research Centre in Education, the Environment and International Development – Emeritus Professor Merv Hyde and Professor Noel Meyers</td>
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### 2012 University Research Week: Program

**Friday, 13 July 2012**

**Location:** INNOVATION CENTRE AUDITORIUM, USC CAMPUS

#### Faculty of Arts and Business Research Day

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<tr>
<th>Time</th>
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<tr>
<td>9–10:30am</td>
<td><strong>Opening Remarks</strong> Professor Joanne Scott, Executive Dean, Faculty of Arts and Business</td>
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<td><strong>Presentations chaired by</strong> Associate Professor Christian Jones, Associate Dean (Research), Faculty of Arts and Business</td>
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<td></td>
<td><strong>Presentation</strong> Iconic species: biodiversity values in social landscapes – Dr Angela Wardell–Johnson</td>
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<td><strong>Presentation</strong> What were they thinking? Cognitive themes and psychological distress associated with the September 2010 Christchurch earthquake – Dr Lee Kannis</td>
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<td><strong>Presentation</strong> New product development in the seafood industry: A case study – Associate Professor Meredith Lawley</td>
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<td><strong>Presentation</strong> The return of the Watercooler TV: how the pan–platform distribution of transnational format The Voice resonated with Australian audiences – Dr Clare Archer–Lean and Ms Anna Potter</td>
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<tr>
<td>10.30–11am</td>
<td><strong>Morning Tea</strong></td>
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<tr>
<td>11–12.40pm</td>
<td><strong>Presentation</strong> Women, work and menopause: the relevance of menopause to occupational safety and health of employed women – Dr Prudence Millear</td>
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<td><strong>Presentation</strong> Shadow play: Punishment and addiction in female drug literature – Ms Nycole Prowse</td>
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<td><strong>Presentation</strong> Entrepreneurship as a method: Lessons from the decision–making logic of small business owners and managers – Dr Margarietha Scheepers</td>
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<td><strong>Presentation</strong> Social Networking Sites (SNSs) as strategic and Dialogic communication tools in the Australian Tertiary Sector: a textual analysis – Ms Natnaree Yodphayung and Dr Umi Khattab</td>
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<td><strong>Presentation</strong> Opinion leaders and complex sustainability issues: fostering response capacity to climate change – Ms Noni Keys</td>
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### Time Session

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<th>Time</th>
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<tr>
<td>12.40–1.40pm</td>
<td>Networking Lunch</td>
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<tr>
<td>1.40 – 2.20pm</td>
<td><strong>Presentation</strong> GroupMap: Large scale interactive map to support group decision making – Associate Professor Christian Jones</td>
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<td><strong>Presentation</strong> Overlapping regional mechanisms of security governance: Adlerian concepts in Northeast Asia – Dr Donna Weeks</td>
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<td><strong>Presentation</strong> Zapping In: Insights into consumer behaviour—analogue past, digital present, cyber future – Dr Roderick McCulloch</td>
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<tr>
<td>2.20–2.40pm</td>
<td>Afternoon Tea</td>
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<tr>
<td>2.40–3.20pm</td>
<td><strong>Presentation</strong> 'Jumping the Fence': a computer–based educational adventure challenging children to interact with the natural environment through physical exploration and experimentation – Dr Uwe Terton</td>
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<td><strong>Presentation</strong> Measuring service performance – Dr Wendy Spinks</td>
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<tr>
<td>3.20–3.30pm</td>
<td>Close by Associate Professor Christian Jones</td>
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### Thursday, 12 July 2012

**Location:** **INNOVATION CENTRE AUDITORIUM, USC CAMPUS**

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<tr>
<td>9–10.30am</td>
<td><strong>Opening Remarks</strong> Professor Roland De Marco, Pro Vice-Chancellor (Research)</td>
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<tr>
<td>10.30–11am</td>
<td><strong>Keynote Presentation</strong> Professor Helen Berry, Deputy Director of Centre for Research and Action in Public Health (CeRAPH), University of Canberra ‘Research Development Planning in Non–Research–Intensive Universities: A Case Study from The University of Canberra’</td>
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<tr>
<td>11–5pm</td>
<td><strong>Groups and Clusters: Successes and Challenges</strong> (invitation only workshop)</td>
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**Location:** **ROOM CG 50, GROUND FLOOR, BUILDING C, USC CAMPUS**

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<th>Time</th>
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<tr>
<td>2–4pm</td>
<td><strong>Workshop</strong> Presentation Skills – Dr Rod McCulloch</td>
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### Friday, 13 July 2011

**Location:** **INNOVATION CENTRE AUDITORIUM, USC CAMPUS**

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<th>Time</th>
<th>Session</th>
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<tr>
<td>9–9.30am</td>
<td><strong>Three Minute Thesis (3MT) Competition Final</strong></td>
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<td><strong>Presentations Chaired by</strong> Associate Professor Christian Jones, Associate Dean (Research), Faculty of Arts and Business</td>
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<td><strong>3MT Presentation</strong> Nutrition at the Commonwealth Games – Sarah Burkhart, School of Health and Sports Sciences, Faculty of Science, Health, Education and Engineering</td>
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<td><strong>3MT Presentation</strong> Jane Austen and the Elvis impersonator – Janet Lee, School of Communication, Faculty of Arts and Business</td>
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<td><strong>3MT Presentation</strong> The lived experience of disability in East Timor – Jane Shamrock, School of Health and Sports Sciences, Faculty of Science, Health, Education and Engineering</td>
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<td><strong>3MT Presentation</strong> What is the effect of Strategic choice and capabilities on performance in the Australian seafood industry? – Daniela Schwarz, School of Business, Faculty of Arts and Business</td>
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<td><strong>3MT Presentation</strong> Effects of omega-3 fatty acids on regulated secretory pathways in human endothelial cells – Corinna Burgin, School of Health and Sports Sciences, Faculty of Science, Health, Education and Engineering</td>
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<td><strong>3MT Presentation</strong> Social representations of climate change: Understanding the public’s thinking through everyday discourse and common sense – Kate English, School of Social Sciences, Faculty of Arts and Business</td>
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<td><strong>3MT Presentation</strong> My TERN (Take Emotional Responsibility Now) – Jane Foster, School of Health and Sports Sciences, Faculty of Science, Health, Education and Engineering</td>
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<tr>
<td>9.30–10am</td>
<td>Morning Tea</td>
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10–10.15am  **Presentation of Awards**  Professor Roland De Marco, Pro Vice-Chancellor (Research), University of the Sunshine Coast  
Award Categories:  
- Best overall research presentation  
  Faculty of Arts and Business  
  Faculty of Science, Health, Education and Engineering  
- Best Early career research presentation  
  Faculty of Arts and Business  
  Faculty of Science, Health, Education and Engineering  
- Best Presentation at Research Expo  
- Three Minutes Thesis (3MT) competition  

10.15–12pm  **USC Research Futures Presentation**  
Introduction Professor Roland De Marco, Pro Vice-Chancellor (Research)  

10.30am  **Presentation**  Associate Professor Neil Powell, CRN Professorial Fellow (Sustainability)  

10.45am  **Presentation**  Dr Pedro Fidelman, CRN Research Fellow (Sustainability)  

11am  **Presentation**  Dr Chris Jacobson, CRN Research Fellow (Sustainability)  

11.15am  **Presentation**  Dr Helen Nahrung, CRN Research Fellow (Forest Sciences)  

11.30am  **Presentation**  Dr Jules Freeman, CRN Research Fellow (Forest Sciences) – University of Tasmania  

11.45am  **Presentation**  Dr Shahla Hosseini-Bai, CRN Research Fellow (Forest Sciences) – Griffith University  

12pm  **Presentation**  Dr Chengyuan (Stephen) Xu, CRN Senior Research Fellow (Forest Sciences) – Griffith University  

12.15pm  **Presentation**  Mark Brown, Professor in Forestry Operations  

12.30–1.30pm  **Networking Lunch**  

1.30pm  **Presentation**  Dr David Schoeman CRN Senior Research Fellow (Water Sciences)  

1.45pm  **Presentation**  Dr Nguyen Ho Nguyen, CRN Research Fellow (Aquaculture)  

2pm  **Presentation**  Dr Renfu Shao, USC Research Fellow  

2.15pm  **Presentation**  Dr Joanne Macdonald, Smart Futures Fellow  

2.30pm  **Presentation**  Dr Kate Mounsey, ARC DECRA Fellow  

2.45pm  **Presentation**  Dr Scott Cummins, ARC Future Fellow  

3–4pm  **Closing Remarks**  Professor Roland De Marco, Pro Vice-Chancellor (Research)  

Celebration Drinks and Savouries  

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**USC RESEARCH BANK**  
Researchers at the University of the Sunshine Coast make their leading research papers and conference proceedings available to the public through a searchable repository known as the USC Research Bank (previously Coast Research Database).  

The purpose of the USC Research Bank is to provide an open access showcase of USC’s scholarly research. It makes the research outputs of the University available to local, national and international communities and highlights the overall research profile of the University.
Abstract
This is a golden age for planetary science. Ground- and space-based observations, and missions to asteroids and other planets, have produced a deluge of new data. But in many ways the field is where geology was in the 1950s. New technologies enabled geologists to explore the ocean basins. Today, technology is allowing researchers to explore the solar system, and the galactic neighbourhood. But planetary science is still waiting for that 'plate tectonics moment'. General models of planet formation are still lacking. Thanks to plate tectonics scientists know how the Earth works. But how the Earth was made is still a mystery.

Twenty years ago, the only known planets were those orbiting the Sun. Today, over 500 exoplanets have been found, and very soon next-generation telescopes such as the Square Kilometer Array will increase the scope of discovery. But these planetary systems are light years away. To understand planet formation it is necessary to look closer to home, at the solar system, and the best way to do this is through meteorites. Meteorites are the oldest rocks in existence: the only surviving physical record of the formation and evolution of the solar system, and the processes that led to the terrestrial planets. They contain a unique record, and sample hundreds of different heavenly bodies—objects from through the solar system. But that most basic piece of geological information—context—the ability to link a rock back to an outcrop, is absent. In almost all cases, meteorite researchers have no idea where their samples come from. In this talk, Phil Bland will discuss how his work is aiming to solve this problem, piecing together the earliest history of the solar system.

Biography
Professor Bland was awarded his PhD in 1995 in the field of Planetary Science from the Open University, Milton Keynes, UK. Since obtaining his PhD Professor Bland has held a Royal Society University Research Fellowship, an 8-year award which he transferred to Imperial College London in 2002. Professor Bland sits on several panels of the UK Science and Technology Facilities Council. He has published his research findings in journals such as Science, Nature, Nature Geoscience, and Proceedings of the National Academy of Sciences.

Professor Bland has been the recipient of several awards and fellowships including: Royal Society Overseas Research Fellowship hosted by the Western Australian Museum, Particle Physics and Astronomy Research Council Postdoctoral Research Fellowship hosted by Natural History Museum (London), Antarctic Service medal of the US Navy, and the Royal Society University Research Fellowship. He has been awarded the Imperial College London research excellence award in 2005 and again in 2006. Professor Bland has also had an asteroid named after him in honour of his various contributions to planetary science.
Keynote Presentation by

Professor Helen Berry

Deputy Director of Centre for Research and Action in Public Health (CeRAPH), University of Canberra

2012 University Research Week (Thursday 12 July)

Keynote Presentation: Groups and Clusters: Successes and Challenges

Biography

Helen Berry MA, BSc, BAppPsych, PhD is a Professorial Research Fellow in psychiatric epidemiology and Deputy Director, Centre for Research and Action in Public Health at the University of Canberra. In its first 2.5 years of operation, the Centre has won over $3.5m in funding, published over 40 journal articles and established a growing reputation for policy-relevant research excellence. Helen’s research interests focus primarily on rural and remote Australia while also leading a program of research into climate change, sustainability and urban health.

These studies mainly involve developing, merging and analysing panel and climate data to better understand the causal interrelationships among climate change, complex disadvantage, community connectedness and mental health. Helen leads the health stream of UC’s $6.3m Collaborative Research Network, Murray-Darling Basin Futures, with personal projects of around $1.5m. She holds honorary appointments at ANU (where she leads climate change and mental health research) and the University of Newcastle. She is author of the widely-cited and internationally used ‘Australian Community Participation Questionnaire’ and of the new ‘Brief Weather Disaster Trauma Exposure and Impact Screen’, both of which are now included in multiple large panel surveys.

In 2008, Helen contributed a commissioned report to the Garnaut Review of Climate Change, in which she led a multi-institution review of the likely impacts of climate change on mental health and, in 2009, she was recognised with 2nd place in the prestigious Eureka Prize for ‘outstanding research into the health impacts of climate change’. Helen’s research career builds on a previous career in public policy in which she gained valuable experience in policy and leadership. She has since drawn on this to produce relevant and policy-applicable ‘real world’ research and to grow and lead successful research teams.
Workshops:
Getting Published
Facilitated by
Dr Bishnu Sharman
2012 University Research Week Monday 9 July (2-4pm)

Workshop aim and outcomes:
This workshop will focus on developing researcher's skills and strategies for getting research work published. In this workshop you will:

- Hear stories of researchers who have successfully published in high ranking journals and books.
- Critique strategies to use when planning to submit to a ranked journal.
- Network with experienced researchers who have successfully published to get feedback on your writing and approach.
- In the workshop you as a researcher will also look at the following:
  - How to choose a journal for publication–determining the rank and impact of journals, finding out about citations.
  - Writing to a particular journal's requirements–what do editors look for?
  - Learning from rejection–getting the most out of feedback.
  - Collaborating with colleagues to write together and provide support and feedback.

Biography
Bishnu Sharma is a Senior Lecturer in Management at the University of the Sunshine Coast in Australia. Bishnu received his PhD in management from the University of Technology, Sydney. He holds a Masters degree in Industrial Engineering & Production Management from Cranfield Institute of Technology, UK and a postgraduate diploma from RVB, Holland. Bishnu has published several research papers in the international refereed journals. Bishnu’s research interest is in the areas of strategy, total quality management, tourism management, sustainability, and business performance. He has received best paper awards (stream) at the ANZAM Conferences in 2004 and 2009, at the ANZMAC Conference in 2009 and the INSM Conference in 2010. Bishnu has also received an 'Emerald Award for Citation of Excellence—Three Stars for Research Implications in the Emerald Hall of Fame' for one of his papers in 2001. Bishnu has been teaching Introductory Management and Strategic Management since 1994.

Workshops in 2012 include:
- Getting Published–Monday 9 July 2–4pm
- Presentation Skills–Thursday 12 July 2–4pm

Develop your skills through participation in hands-on workshops

The University Research Week provides opportunities to engage USC researchers, particularly early career researchers, in research forums, as well as providing access to research mentors and research resources. The Research Week program incorporates the provision of learning opportunities through the delivery of hands-on workshops with a view to generating networking opportunities across the University.
Workshop:

Presentation Skills

Facilitated by

Dr Rod McCulloch

2012 University Research Week (Thursday 12 July, 2-4pm)

Presentation: An art not an accident

How we present is arguably as important as what we present. Be it a three minute thesis, a 20 minute slot in a conference stream, or a two hour lecture, engaging with our audience, communicating our information and getting a favourable response is an art—not an accident.

In this special research workshop session, we’ll look at proven strategies and methodologies for developing and delivering successful presentations.

Biography

Dr Rod McCulloch is Head of the School of Communication at the University of the Sunshine Coast. Dr McCulloch is an academic and researcher with a strong professional and industry background. He is a publisher and speaker on international advertising strategic planning.

He has just completed the manuscript for a book on international advertising planning in the digital media environment, to be published by Allen and Unwin in 2012. He is also a member of and an active researcher in the Federally-funded national research centre, the Institute for Land, Water and Society (ILWS), as well as researching and publishing in the area of work-integrated learning, problem-based learning and authentic assessment.

Before moving into academia at Charles Sturt University in 2002, Dr McCulloch had extensive experience in the advertising and marketing communication industry in Australia and internationally. From 1989 to 2002, he co-owned his own Sydney-based advertising agency Barnes McCulloch Advertising. Dr McCulloch maintains an active participation in the industry in Australia and internationally through involvement with the Communications Council (Australia) and the Media Federation of Australia (MFA), as well as researching and publishing in the area of work-integrated learning, problem-based learning and authentic assessment.

Workshop:

Groups and Clusters: Successes and Challenges

Facilitated by

Professor Helen Berry

2012 University Research Week (Thursday 12 July, 11am–5pm)

Workshop details

This workshop is designed to support the establishment and development of new Research Clusters/Centres/Institutes. Participants will look at the following:

- Identification of thematic groups
- Naming of Themes
- Setting up interrelationships diagram

This closed workshop has been designed to give research leaders in their proposed Clusters/Centres an opportunity to learn from the successes and challenges associated with the establishment of Research Clusters/Centres. This workshop will be attended by current research leaders at USC and those who have submitted an Expression of Interest in establishing a new research cluster or centre in 2012.
Faculty of
Science, Health,
Education & Engineering

RESEARCH DAY

2012 University Research Week (Tuesday 10 July)

Welcome: Professor John Bartlett, Executive Dean, Faculty of Science, Health, Education and Engineering

It is a pleasure to welcome you all to the Faculty Research Day for the Faculty of Science, Health, Education and Engineering. The characteristic that defines Universities as institutions where 'Knowledge Generation' and 'Knowledge Dissemination' share primacy is exemplified in iconic days such as this, and I look forward to innovative ideas and new approaches being exchanged and tested in a lively and passionate environment. The research being undertaken within FoSHEE is diverse and inter/multi/trans-disciplinary, reflecting both our Faculty's breadth and the truism that many of the most interesting problems—and those with the greatest impact or most pressing need—are often found at the boundaries of 'traditional' disciplines. Our diversity and strength is evident from the number of presentations that will showcase the research being undertaken across our three Schools, GeneCology and aspirational Research Clusters/Centres, with over 30 speakers contributing to the day. It is also a pleasure to acknowledge our most recent ARC success, with the news just to hand that one of our colleagues in Engineering has been awarded an ARC Linkage grant. This success will further enhance the growing research culture within FoSHEE and I look forward to exploring ways to continue our research momentum.

Please accept our invitation to participate in what will be an exciting and diverse smorgasbord of research, and to explore opportunities for new collaborations and new research initiatives. I particularly look forward to the involvement of our HDR, Honours and future Honours students in the day, and to hearing their ideas and thoughts on some of the pressing challenges that can be addressed by the research within USC.

Introduction: Professor Helen Wallace, Associate Dean (Research), Faculty of Science, Health, Education and Engineering

Welcome to the inaugural Faculty Research Day for the Faculty of Science, Health, Education and Engineering. This is the first Faculty Research Day and will become an annual event where we showcase the cutting edge research that is happening in the Faculty. We are now at an exciting time for research in the Faculty with many new research staff, new research projects, and many aspiring research clusters and centres. We have had many successes in recent years and over the next few years I’m sure we will have many more successes to celebrate. Today we have 32 speakers and 11 poster presentations from across the three schools and we are also shining the spotlight on the aspiring research centres in the Faculty.

I would like to take the opportunity to invite all to participate in this exciting phase of growth of our research in the Faculty. I hope you enjoy the day and take full advantage of the opportunity to communicate your research, and connect and collaborate with other researchers in the Faculty.

PRESENTATION ABSTRACTS

Associate Professor Wayne Knibb
GeneCology

Presentation: Increasing the affordability and availability of fresh high quality Australian seafood

Australia now imports more seafood than it exports, despite having the third largest marine Economic Exclusion Zone in the world. Seafood imports will rise further after approval to host 70% of the globe’s marine parks in the Australian EEZ. This shift is felt personally, viz. our ‘local fish-and-chips shops’ now typically sell frozen imported seafood like freshwater Vietnamese catfish, and quality local fish is unaffordable for ordinary Australians on a regular basis. This creates a paradox whereby families wish to enjoy the health benefits of seafood but are unsure about the safety of imported seafood. Further, not only are we unable to enjoy quality, safe, fresh Australian product, but we cannot control the production practices and environmental impacts of overseas seafood production.

Globally, aquaculture is meeting the demand for seafood now unfilled by wild fisheries, but in Australia aquaculture growth is often constrained by lack of licence approvals (e.g. no new prawn farm licence approvals for ten years). Increasing the efficiency of existing aquaculture industries is one way to increase production of Australian seafood, reduce costs and increase affordability. USC is working with aquaculture companies across Australia to help create more and efficient production by developing new breeds of aquaculturized organisms that are suited to captive production. The domestication and genetic improvement of terrestrial species like sheep and wheat commenced thousands of years ago and led to massive gains in productivity, so that today we could not afford to eat eggs produced by wild chickens, or flour milled from wild wheat. The same massive gains are in prospect for aquaculturized species—our challenge is making this happen not in 10,000 years but within decades and for all our diverse aquaculturized species. How we are doing this, using both quantitative genetics and molecular genetics, will be the subject of the talk.

Mr Naoki Kabeya (PhD Candidate)
GeneCology

Presentation: Modification of fatty acid metabolic pathway by transgenesis in nibe croaker (Nibea mitsukurii)

Marine fishes are generally unable to produce docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) as they are deficient in the key fatty acid-metabolizing enzymes in the DHA/EPA biosynthetic pathway. It is therefore necessary to supplement with fish oil to diets for cultured marine fish species, which is a dietary source of EPA and DHA. However, since fresh water fishes are capable of synthesizing both DHA and EPA, and they presumably express all of the enzymes required for this biosynthetic pathway, we hypothesized that transgenic marine species carrying the aforementioned fatty acid-metabolizing enzymes could be reared without dietary fish oil. As the first step towards this goal, we
produced a transgenic marine fish, the nibe croaker (Nibea mitsukurii), carrying a gene encoding a fatty acid-metabolizing enzyme isolated from masu salmon (Oncorhynchus masou).

In order to select a promoter that exhibited high activity in the liver, a major organ involved in fatty acid metabolism, abundant transcripts in the liver were identified by EST analysis. The upstream region of the identified gene was isolated by vectorette PCR and then ligated to the masu salmon elongation of very long chain fatty acids protein 2 (elov2) gene (OmElv2), which has been predicted to catalyze the elongation step required for producing C22 fatty acids from C20 fatty acids. The resulting transgene was then microinjected into fertilized eggs of the nibe croaker and transgenic F1 progeny carrying the OmElv2 gene were produced by crossing the 16 week-old founders with non-transgenic fish. Subsequently, PCR analysis was performed to identify transgenic individuals and to clarify the distribution of OmElv2 transcripts in F1 fish. In addition, the fatty acid compositions of transgenic F2 fish raised with commercial feed were compared to those of non-transgenic fish. The Apo-14 kDa gene was highly expressed in nibe croaker liver. The OmElv2 gene, which was driven by a 3-kb upstream region of Apo-14 kDa, was transferred into the nibe croaker and the resulting founder was raised to maturity. Among the 46 fish that survived to adulthood, 18 mature males were obtained. PCR analysis detected the presence of the OmElv2 gene in the spermatozoa of one of the fish. Using this transgenic founder, we confirmed germline transmission of the transgene to subsequent generations. The OmElv2 gene was highly expressed in the liver of transgenic F1 individuals, and fatty acid analysis revealed that the liver EPA (20:5n-3) content in OmElv2 transgenic F2 individuals decreased (3.3% vs. 7.7%). However, the DPA (22:5n-3) content in transgenic fish was 2.28-fold (4.1% vs. 1.8%) higher than those of non-transgenic individuals. We therefore concluded that transgenesis of fatty acid-metabolic enzymes can be a powerful tool for manipulating fatty acid metabolic pathways in fish.

Mr Ido Bar (PhD Candidate)
GeneCology

Presentation: Development of Spermatogonia: A transplantation (surrogate) technology for production of Southern Bluefin Tuna (Thunnus macoyii) seed

The Southern Bluefin Tuna (SBT), Thunnus macoyii, is a highly sought after fish in the Japanese and international market, and as such, it is garnering great interest in the aquaculture sector, in attempts to farm the SBT in aquaculture facilities. However, SBT reaches sexual maturity at the age of 10–12 years, weighing approximately 100–150 kg, which implies heavy husbandry and maintenance costs and labour. Further to this, SBT broodstock cannot be handled for reproductive assessment, and the spawning season in captivity is short, thus limiting work on larval rearing and juvenile stages. Therefore, in order to secure a steady supply of SBT seed, both for R&D and commercial applications, improvement in SBT reproductive performance is needed.

One of the most important recent discoveries that may revolutionize SBT aquaculture has been the development of surrogate broodstock technology, pioneered by Professor Gore Yoshizaki and his research group (Yoshizaki et al., 2003). Surrogate technology is already used across the medical and agricultural disciplines, when embryos from high value cows or mares are implanted in less valuable surrogates. Fish however, incorporates a flexible and conserved gonads development mechanism, allowing successful transplantation of primordial germ and Spermatogonia A cells into larvae of a different species and even families of fish.

The transplanted cells then join the native germ cells’ migration routes to the genital ridge and can differentiate into a functioning donor derived gonad. Transplanting SBT germ cells in a small and fast growing host such as Yellowtail Kingfish (YTK), Mactuna, Skipjack tuna, etc. and obtaining a surrogate which develops gonads with SBT eggs and sperm, will transform broodstock management by reducing dramatically the cost of facilities, enabling year round SBT seed production and opening the door for the development of a genetic selection program for SBT, as it effectively cuts the generation time to 2–3 years.

Dr Steven Ogbourne
GeneCology

Presentation: Euphorbia peplus–from folklore remedy to clinical treatment for skin cancer

The sap of Euphorbia peplus, commonly known as ‘petty spurge’, ‘radium weed’ or ‘milkweed’, has been used for centuries as a traditional treatment for skin conditions, including warts, corns and non-melanoma skin cancer (NMSC). NMSC is the most common cancer worldwide, with over 2 million patients treated annually in the US, costing US society more than US$1.4 billion for direct treatment alone (The Lewin Group, 2005).

In a survey of home remedies for NMSC, administration of E. peplus sap was unanimously considered to be effective; anecdotal evidence that was supported by a clinical trial that resulted in complete cure of 30 out of 48 (62.5%) lesions treated with E. peplus sap. Together, these results supported the identification and commercial development of the active constituent of E. peplus sap.

Activity-guided fractionation led to the identification of ingenol-3-angelate as the primary active constituent of the sap and emerged as a promising potential new anti-cancer treatment. This presentation summarises the discovery and development of ingenol-3-angelate through to its approval by the US Food and Drug Administration as a novel therapy for NMSC.

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Third, the pubic louse has the same pattern as the body louse and the head louse for the distribution of mt protein-coding and rRNA genes. This pattern, thus, has been stable for at least 7 million years. Most tRNA genes of the pubic louse, however, are on different minichromosomes when compared with their counterparts in the body and head louse. There is evidence that rearrangement of four tRNA genes (for leucine, arginine and glycine) was due to gene-identity switch by point mutation at third anti-codon positions, whereas rearrangement of 10 other tRNA genes was due to gene translocation between minichromosomes.

**Dr Joanne Macdonald**  
Smart Futures Fellow, School of Science, Education and Engineering, GeneCology

**Presentation:** DNA Designs and Counteracting Cocaine: Introducing Molecular Engineering

Forget encoding life, ever wanted to make DNA play tic-tac-toe, or re-design proteins for cocaine detoxification? The accumulated knowledge about biomolecules can now be used to intentionally design new technologies through molecular engineering. As an example, we have constructed molecular circuits from DNA that play tic-tac-toe interactively with a human opponent. The circuits are built from engineered deoxyribozymes, which react to DNA inputs and produce DNA outputs that trigger the accumulation of fluorescence in a well plate. We have also re-engineered a natural cocaine-degrading protein enzyme (CocE) to be stable at body temperature for use as a cocaine overdose antidote. Through two amino-acid substitutions (T172R and G173Q; DM-CocE) we improved the protein’s in vitro half-life at 37 °C from 15 minutes to 5 hours. In vivo, the enzyme can protect mice against a lethal injection of cocaine (up to 200mg/kg), and in monkeys can reduce cocaine-induced cardiovascular effects within 5-10 minutes of administration. These two examples demonstrate the application of molecular engineering to improve existing molecules beyond their narrow range of conditions, and to even create new functions that do not exist in nature.

**Professor Helen Wallace**  
GeneCology

**Presentation:** Creating new weeds: Do stingless bees disperse Corymbia torelliana hybrids?

New weeds can evolve rapidly through hybridisation, where hybridisation confers new characteristics on plants that allow them to colonise new habitats. Corymbia torelliana is a declared weed with an unusual mechanism for long distance dispersal. The seeds of C. torelliana are dispersed by stingless bees. Corymbia torelliana readily hybridizes with other Corymbia species and many hybrids have been created as part of a forestry breeding program. We investigated whether the hybrids of this species also have characteristics that would allow them to be dispersed by bees. We found some hybrids are attractive to bees and all hybrids contain resin in their capsules. C. torelliana has a suite of internal and external capsule characters that enable bee dispersal. Overall, 88% of all hybrids had the appropriate internal capsule structure that would allow bee dispersal. These capsules were hollow and bees could enter and forage inside but the capsules did not attract stingless bees. Seed from the hybrid trees that attracted bees was heavier than that of C. torelliana. We also found that Corymbia hybrids inherit a variable chemical profile compared with their C. torelliana parent. Resin profiles that are more similar to C. torelliana are likely to be associated with bee visits, and hybrids that are unattractive to bees have less monoterpenes overall. Our results show a small proportion of the hybrids will inherit the complete set of characters that enable bee dispersal from their C. torelliana parent. Therefore large scale plantings of C. torelliana could contain a small proportion of trees that pose a risk of becoming an invasive weed.

**Dr Michael Stewart**  
GeneCology

**Presentation:** Dual function of the moult-inhibiting hormone (MIH) in the blue crab gives new perspective for the established role of MIH action.

The neuroendocrine processes that regulate crustacean moulting and reproduction are multifactorial and dependent on the interaction of several endocrine organs and their products. Identified initially as a neuropeptide belonging to the crustacean hyperglycaemic hormone superfamily, the moult-inhibiting hormone (MIH) is a key member of the subset Type-II hormones playing an active role in the regulation of moulting. However more recently, additional roles for MIH have been suggested.

The purpose of the present study was to ascertain the functional significance of the putative MIH gene and determine if MIH has a divergent role other than inhibiting the activity of ecdysteroids. We employ methodology central to functional genomics – RNA interference (RNAi), and protein expression as determined by RT-PCR, reverse phase-HPLC, MALDI-TOF mass spectroscopy, SDS-PAGE, western blot analysis and immunohistochemistry to answer these questions, and use the blue manna crab Portunus pelagicus as our model. This species which has significant commercial value to aquaculture and emerging Asian markets is typical of other crab species and is ideal for determining the established mode of MIH action.

A MIH (PpelMIH) gene encoding for an 8.57kDa protein was isolated. Subsequent characterization of PpelMIH by dsRNA mediated gene silencing over a 5 day period found that there was a significant reduction of the number of PpelMIH transcripts. A direct correlation to PpelMIH gene silencing to PpelMIH protein production and its effect on gonad maturation was also assessed through the detection of vitellin in ELISA and immunofluorescent assays. Clearly as a consequence of dsRNA mediated silencing, Ppel-MIH has a direct involvement in regulating both MIH and vitellin levels. This suggests that MIH could obtain both a functional role on ecdysteroid production, but also could be a putative gonad stimulating hormone, due to its involvement in upregulating vitellogenin levels in non-treated crabs, but decreases post dsRNA mediated silencing.
Professor Mark Brown  
Director AFORA  

Presentation: Forest Industries Research Centre  
In the current call for expressions of interest a proposal for a Forest Industries Research Centre has been proposed based around the industry collaborative research program Australian Forest Operations Research Alliance (AFORA) and the DAFF-Queensland/USC partnership around industry related forest research. The presentation will provide a brief overview of the proposed centre scope and objectives that will lead into 3 research presentations on research being carried out by proposed centre participants:  
- Dr David Lee: Developing Myrtle rust resistant trees  
- Dr Luke Mirowski: Optimised log transport planning with Fast Truck  
- Dr Helen Nahrung: Healthy forest trees make productive forestries: an overview of pest and disease management research

Associate Professor David Lee  
QFAFF and faculty of Science, Health, Education and Engineering  

Presentation: Developing Myrtle rust resistant trees  
Myrtaceous species including the eucalypt icons of the Australian landscape are currently being challenged by an introduced disease Myrtle rust (Puccinia psidii), that is drastically altering Australia’s forest ecosystems. Puccinia psidii, a fungal disease native to South America, was detected for the first time in central New South Wales in April 2010 and has now spread to many parts of Queensland including as far north as the Daintree National Park north of Cairns. As most species currently used in commercial, carbon and environmental plantings are potentially susceptible, we are screening key hardwood species to understand the impact of the disease on forest trees so that we are able to select varieties with high levels of resistance to the disease. This will reduce risks for new timber, agroforestry and carbon plantings and allow these sectors to expand using disease resistant trees.

Dr Helen Nahrung  
CRN Research Fellow (Forest Sciences)  

Presentation: Healthy forest trees make productive forestries: an overview of pest and disease management research  
The role of forest health research is to develop cost-effective, environmentally sustainable management options for pests and pathogens that can cause considerable damage resulting in significant economic losses. Hardwood (eucalypt) plantations are attacked by insects moving from native forest into these large even-aged monocultures which provide a vast resource allowing rapid population buildup. Major pest guilds of eucalypts include sap suckers, defoliators and stem borers. Softwood (pine) plantations have fewer pest species, but the exotic pine wood wasp has recently established in Queensland and threatens productivity in subtropical areas. Our current forest health research includes resistance breeding, optimising site nutrition, landscape modelling for predicting risk factors, enhancing natural enemies for biological control in plantations, and exploiting chemical signalling pathways between pests and hosts. Key pests of hardwood plantations include erinose mites, leaf beetles and stem borers and specific research results on these groups will be discussed.

Dr Luke Mirowski (Dr Mauricio Acuna)  
Research Fellow, AFORA USC, CRC for Forestry UTAS  

Presentation: Optimised log transport planning with FastTRUCK  
Transporting wood from coupes to mills costs the Australian forest industry $1.2 million a day. In order to reduce these costs, a software system called FastTRUCK was developed, providing a way for the industry to improve transport planning, thereby reducing transport costs by 10%.  
FastTRUCK is an operational, tactical and strategic tool, available for use within forestry companies. Using the software, the company can identify and reduce costs across the entire planning spectrum. This includes daily dispatching of trucks, from harvest locations to mills; haulage contract design; fleet configuration on a monthly basis; fleet configuration on an annual basis; and even the performance of outsourced dispatching operations.  
FastTRUCK uses a ‘decision support’ approach for the optimised planning of wood supply to pulp and saw mills and the technologies used for this purpose are introduced. A domain model of forestry operations is described and a simulator based on it is demonstrated. Because the underlying domain model is tailor for Australian conditions, the system guides ‘optimisation’ towards plans more suited for these localities. The advantages of FastTRUCK for companies in the context of the planning horizon are illustrated, including specific examples from the Australian forest industry. Interesting insights arising from simulator results are confirmed through comparisons with current operational data to illustrate the effectiveness of the system in the companies. These results are encouraging forestry companies around Australia to consider technologies which improve transport planning.

Dr Florin Oprescu  
School of Health and Sport Sciences  

Presentation: Centre for Applied Health Innovation and Translation (CAHIT)  
The mission of the Research Centre is to investigate innovative applied research in health and translate into practice health research on issues that enhance the quality of life of people in the region, state, nation and world. The centre incorporates a multidisciplinary approach to research questions and draws on the Allied Health, Public Health and Sport Sciences. This Centre will be a joint venture between the University of the Sunshine Coast and the Sunshine Coast-Wide Bay Health Service District (SCWBHSD). The presentation will describe the research activity statement, proposed research outcomes and examples of projects from the centre’s members.

Professor Emeritus Merv Hyde & Professor Noel Meyers  
School of Science, Education and Engineering  

Presentation: Research Centre in Education, the Environment and International Development  
This presentation will outline the objectives, structure, membership and current and future activities of the proposed Tier 2 Research Centre on Education, the Environment and International Development. Examples of research and research planning will be provided.
**Dr Bill Allen, Professor Emeritus Merv Hyde and Ms Maureen O’Neill (PhD Candidate)**  
School of Science, Education and Engineering  

**Presentation: IPG Impact Evaluation of USC/AusAID program for Papuan teachers on their return to schools.**

IPG has conducted seven projects in teacher development for teachers from the remote, high poverty province of Papua in Eastern Indonesia. While Monitoring and Evaluation reports have always produced positive results regarding the teachers’ views of the programs and what they have learnt, no detailed evaluations have either been required or conducted on the effects that these teachers have had since their return to Papua.

This presentation reports on Phase I of an evaluation conducted by IPG staff into the impact, influences and leverage that these teachers have had or may have had since their return to Papua. Using a retrospective longitudinal design, researchers designed a customised 101-item survey to explore three phases, exploring common items before, during and after the projects. Data were analysed using non-parametric tests and findings are presented here. The presentation considers implications for policy and practice in further projects and educational change in Papua.

**Dr Fraser Russell**  
School of Health and Sport Sciences  

**Presentation: Inflammatory Processes in Health and Disease**

Researchers at USC, SHSS have submitted an Expression of Interest in the establishment of a Research Cluster. The proposed name of the Cluster is ‘Inflammatory Processes in Health and Disease.’ The research program aims to investigate the molecular, immunological, and physiological mechanisms underlying inflammatory processes; the role of environmental and host factors and their interaction in the development and progression of inflammation; and to take a multidisciplinary approach to develop methods for prevention, diagnosis, and interventions to reduce symptoms and improve quality of life. The long-term goal of the Cluster is to contribute substantially to sustainable improvements in individual health outcomes related to dysfunctional inflammatory processes. We will achieve this by excellence in research, building on existing knowledge and filling evidence gaps, and in so doing contribute to the national health agenda and NHMRC identified national health priorities in cardiovascular and chronic respiratory disease. Key personnel include A/Prof Shelley Walton [Director], Dr Fraser Russell, Dr Kate Mounsey, A/Prof Mohammad Katouli, Dr Anna Kuballa, Dr Dale Lovell, Dr Peter Brooks, Dr Joanne Macdonald.

**Dr Mark Sayers**  
School of Health and Sport Sciences  

**Presentation: Three dimensional pelvis and hip interaction during punt kicking: skilled versus novice players**

Punt kicking is a fundamental skill for many of the football codes and yet it has been subject to limited scientific investigation. The purpose of this study was to examine the interrelationships between punt kicking proficiency and pelvis and lower limb kinematics during kicks for maximum velocity. Three dimensional data (500 Hz) were collected during maximal velocity punt kicks performed by 15 semi professional (S-Pro) Rugby Union players and 15 male recreational (Rec) kicking sport athletes. Results showed that the punt kicking technique of the S-Pro group involved complex multi-planar pelvis movements, with greater emphasis on axial pelvis rotation than the Rec group. In addition, rapid axial pelvis rotation velocities were key determinants of the high punt kicking ball velocities developed by the S-Pro group. Conversely, less skilled punt kickers placed greater emphasis on simple flexion/extension movement patterns, a strategy that possibly limited punt kicking ball velocity. Results suggest that the skilled kickers may be generating a tension arc via a stretch-shorten cycle in the kicking hip flexors, although this area needs to be investigated further. The complex 3D pelvis movements incorporated by the S-Pro group may help to explain the high incidence of groin and pelvic injuries in high performance kicking sport athletes.

**Ms Michelle Van Mulken (PhD Candidate)**  
School of Health and Sport Sciences  

**Presentation: Towards a deeper understanding of women’s physical activity behaviour during pregnancy and postpartum: A feminist analysis**

Introduction: Women going through the major life transition of pregnancy and motherhood experience significant physical, psychological, social and lifestyle changes, including a decrease in physical activity behaviour, which compromises maternal health. The aim of this study was to explore how women gave meanings to physical activity in their everyday lives during the antenatal and postnatal phase.

Methods: semi-structured in-depth telephone interviews amongst a purposively recruited sample of 30 pregnant women. Interview questions were based on a socio-ecological framework and analysed through a feminist lens. Questions focused on changes in PA behaviour, general barriers and enablers of PA, individual factors, and social and physical environmental factors influencing PA behaviour.

Results: Individual factors (e.g., life changes related to motherhood, physical and psychological well-being, self-efficacy, motivation, and priority), social environmental factors (social support and social cohesion) and the physical environment (e.g., neighbourhood safety, availability and accessibility of paths and PA facilities, and enjoyable scenery) influenced women’s PA behaviour during pregnancy and the postnatal phase. Within these environments, the feminist analysis identified struggles, which inhibited PA: 1) stigma attached to pregnancy, 2) selfishness and guilt due to social norms and lack of understanding, 3) fulfilling own needs and the needs of others, and 4) breastfeeding in public.

Discussion: Existing behavioural change theories do not sufficiently explain women’s PA behaviour during pregnancy and the postnatal period. Their unique needs ought to be addressed in order to increase PA behaviour and wellbeing during this phase of a woman’s life. Strategy suggestions include removing the stigma from pregnancy, improving community awareness around the importance of physical activity behaviour during and after pregnancy, increasing knowledge in pregnant women and mothers on the benefits of physical activity for their own and family’s wellbeing, assisting women in finding a balance between social responsibilities and self-care, and promoting public breastfeeding.
Professor Margaret McAllister
School of Nursing and Midwifery

Presentation: The STAR framework: Educational Action Research and the challenge in extending, embedding and sustaining innovations

Purpose: The findings of an educational action research project completed in 2011 involving academics in five health disciplines will be presented. An important aim for the presentation is to seek colleagues’ input on how the educational innovation, a transformational learning framework for educators, can be extended, embedded, sustained and researched on a larger scale.

Transformative Learning (TL) practices use ‘forms of pedagogy that treat students as critical agents; make knowledge problematic; utilize critical and affirming dialogue; and make the case for struggling for a qualitatively better world for all people’ (Giroux, 1988, p.127). However TL it is not always familiar to educators. Therefore, members of USC faculty devised a novel framework, STAR, that encapsulates important TL principles. The acronym STAR emphasizes key transformative learning outcomes in students: to be Sensitive about pertinent issues, to Take Action, and to Reflect. This presentation will explain the STAR Framework, the Action Research project that evaluated and extended the framework, and the results of the study from the perspective of five disciplines: nursing, nutrition and dietetics, occupational therapy, paramedics and health promotion.

Methods: Using an action research methodology within a 3 cycle process, STAR was trialled and evaluated by an interdisciplinary team of health educators (N= 25) in an Australian university. Data were gathered via individual interviews, focus group discussions and field notes, and were analysed inductively, with member checking of emerging themes to ensure interpretive rigour.

Results: Results suggest that STAR is easily understood by users, has relevance for health educators in various disciplines, and holds promise in producing superior educational outcomes. Furthermore, this project resulted in interdisciplinary collaboration within and beyond the classroom.

Conclusion: The STAR framework is a resource created by and for health science educators. It can help identify discipline specific threshold concepts, it can provide potential actions for educators and students to take and it encourages reflection for both educators and students. In order for the innovation to be diffused through the health educator disciplines, future research needs to be undertaken. Your input is sought on how we might achieve this.

Dr Florin Oprescu
School of Health and Sport Sciences

Presentation: Using qualitative research to explore an online community designed to reduce alcohol misuse and improve health and wellbeing

Sixty percent of young men and 44% of young women in Australia engage in risky levels of alcohol consumption every month (Australian Institute of Health and Welfare, 2010) the resulting cost (direct and indirect) due to alcohol were estimated to be over $15 billion (Collins, 2008). Harms associated with alcohol misuse by young people include passing out, memory loss, accidents, injuries, crime, unwanted unprotected sex, financial difficulties, social conflicts, low self-esteem and poor performance in school and outside school (Rickwood, Goerge, Parker & Mikhailovich, 2011; Kypri, Paschall, Langley, Baxter, Cashell-Smith & Bourdeau, 2009). Hello Sunday Morning (HSM) is an Australian web-based alcohol reduction online community that has been lauded by the National Cooperative Research Centre for Young People, Technology and Wellbeing (Burns, 2011) as an exemplary and innovative health promotion initiative that is resulting in positive health related outcomes for many individuals, who would otherwise be at high risk for alcohol misuse, addictions and other risk behaviours associated with binge drinking. To learn more about the community and what makes it attractive for members a qualitative research methodology based on social constructivist theory has been employed to explore the content of 200 randomly selected first blog posts. Results indicate that 86% of HSM members joined the community to tackle their alcohol misuse, 42% joined in for the challenge, and 22% to address self-image issues. Barriers to behaviour change identified by HSM members include social norms (44%) and lack of self control (28%). HSM seems to be successful in engaging its members by providing a healthy challenge, by providing inspiration through connected public blogs and by providing support. It is suggested that qualitative health research can generate valuable evaluation data, a better understanding of the social construction of alcohol consumption and a better understanding of online-based health promotion initiatives.

Dr Colin Solomon
School of Health and Sport Sciences

Presentation: Determining changes in local tissue oxygenation using near infrared spectroscopy; Application to the effects of exercise, environmental smoke exposure, and age

The application of Near Infrared Spectroscopy (NIRS) to biological tissues has allowed the non-invasive measurement of local tissue oxygenation in vivo. Simultaneous measurements of local tissue oxygenation at multiple sites can be used to determine the distribution of oxygen supply and utilisation during exercise. Comparison of oxygenation at locomotor muscles versus the brain provides an indication of peripheral versus central mechanisms of fatigue during exercise.

Regular aerobic exercise produces lower systemic oxygen utilisation, pulmonary ventilation, blood pressure, and heart rate, and increased oxygen transfer in muscle tissue during exercise. Exposure to tobacco smoke, either directly via smoking or indirectly from environmental tobacco smoke (ETS), is associated with changes in pulmonary ventilation, resulting in dyspnoea during exercise, and decreased oxygen supply and exercise capacity.

Aging is associated with a decrease in the supply of oxygen to active tissues. A series of projects are being conducted to determine the effects of exercise, ETS exposure, and aging on changes in local tissue oxygenation, and the distribution of these changes across multiple muscle and brain sites. Preliminary results will be presented. The results of these projects will be used to understand the mechanisms of exercise capacity and fatigue.
Ms Nicole Masters (PhD Candidate)
School of Health and Sport Sciences

Presentation: Population dynamics of Escherichia coli and Enterococcus spp. in an urban river after an extreme wet weather event

Escherichia coli and enterococci spp. are common water quality indicators, however they may also be pathogenic carrying several virulence and antibiotic resistance genes. We investigated the population dynamics of these indicator bacteria from 22 different sites during 3 sampling round with 2 weeks interval, along the Brisbane River after the 2010-2011 flood. There was a significantly (P < 0.05) higher numbers of E. coli and enterococci in most sampling sites during the first sampling round than the second or the third sample. In all, 360 E. coli strains were typed using a high resolution biochemical fingerprinting method and grouped into either single (S) or common (C) biochemical phenotypes (BPT). These strains were also tested for 59 virulence genes associated with intestinal and extraintestinal E. coli and 23 antibiotics. Four hundred and ninety-two enterococci spp. were also typed and tested for 6 VGs involved in pathogenesis of enterococci and 15 antibiotics. The obtained results indicated the presence and persistence of certain dominant E. coli and enterococci clonal groups during all three rounds. Two E. coli clonal groups were found to represent 30% of all isolates, with multiple antibiotic resistance and virulence genes. Three enterococci clonal groups were also found to represent over 45% of all isolates with multiple antibiotic resistance and virulence genes.

Mr Kenneth Young
School of Science, Education and Engineering

Presentation: The apprenticeship of observation and secondary preservice teachers

Contemporary research into preservice teacher’s perspectives of the roles of teacher in the profession has been conducted by numerous researchers (Auh, 2006; Borg, 2004; Britzman, 2003; Broadbent, 1998; Chong, Low, & Goh, 2011; Louden, 2008; Pajares & Urdan, 2008; Preissman, 2007; Scheppe, 1987; Stroud, Smith, Ealy, & Hurst, 2000; Williams & Soares, 2002). Although our western social structures have altered in many ways over recent decades, research into preservice teacher’s perspectives of the roles of teacher in the profession over previous decades can provide unique vantage points from which to consider the issue of preservice teacher perspectives of teacher roles.

Wright and Tuska (1968) outline their conceptualization of the development of preservice teacher self-perspectives as stages–dream, play and life. In this conceptualization, preservice teachers initially dream of what they will do as teachers. Preservice teachers then undertake supervised professional experience in schools, allowing them the opportunity to play at being at teacher. Finally, on taking up a teaching position, they live the life of a teacher. The Apprenticeship of Observation conceptualization proposed by Lortie (1975) also provides a basis from which to consider contemporary understandings of preservice teacher’s perspectives. Lortie (1975) proposes that the extended interactions that preservice teachers have had of schools and teachers through their own school attendance can be seen as serving an apprenticeship in teaching. Lortie (1975) contends that preservice teachers arrive at their teacher education programs with pre-existing perspectives of the roles of teachers, and that these perspectives impact on preservice teachers as they undertake their studies.

Dr Adrian McCallum
School of Science, Education and Engineering

Presentation 1: The North Pole to Greenland: A Scientific Transect

In April 2012 a team of four set out south from the North Pole, their destination: Greenland, over 700 km away; their aim: the intimate collection of never-before obtained data from beneath the ice; data that could verify the role that a changing Arctic may play in the greater Atlantic circulation, with implications for the climate of Europe and beyond. That was the 2011 Catlin Arctic Survey, and I was one of that team.

The aim of the 2011 Catlin Arctic Survey was to investigate how changes in the Arctic Ocean may impact the Atlantic thermohaline circulation; a global ocean circulation system that affects climate and weather patterns worldwide, driven by buoyancy differences because of changes in water temperature and salinity.

Diminished extent and thickness of sea ice, thawing permafrost and increased rainfall and runoff from glaciers and rivers is increasing the amount of freshwater entering the Arctic Ocean; temperatures are rising and these processes may interrupt the driving and sinking mechanisms of Atlantic surface water.

The expedition phase of the Survey consisted of a six-week overland traverse from the vicinity of the North Pole towards Greenland. The scientific routine included observations of sea ice morphology, measurement of ocean temperature and salinity to hundreds of metres beneath the ice and three-dimensional profiling of currents to a depth of 100 m. Measurements were obtained daily after manually drilling through the sea ice, sometimes in temperatures less than -50°C.

Although preliminary analysis has occurred, the wealth of data obtained throughout this innovative survey are still undergoing scrutiny. The 2011 Catlin Arctic Survey was an audacious privately-funded research expedition, the results of which may shed new light on evolving climates within a changing world.

Presentation 2: Recession of Indonesia’s tropical glaciers; implications?

Climate change is influencing many components of the earth’s natural systems, yet perhaps none more so than the cryosphere. Whilst the Arctic has long been regarded as the ‘canary’ of climate change, other ice masses are also experiencing change. Low-latitude tropical glaciers in Africa, the Andes, the Himalaya and Papua are receding at unprecedented rates with serious implications for local inhabitants. Glaciological field work in the vicinity of the Puncak Jaya massif, Papua, will attempt to address the following: What is the thickness and thus mass and water volume of the ice masses in the vicinity of Puncak Jaya, and what is their past and forecast temporal variability; what are the implications on the local hydrological system and thus the water supply for local inhabitants should glacial recession and eventual extinction occur in the region, and
what effect might such recession have on the establishment of glacial hazards within the region? A brief outline of the envisaged research and its global context is presented.

Professor John Yeaman
School of Science, Education and Engineering

Presentation: A case for Road Infrastructure Research and Development

At a State Parliament cabinet meeting on 18 May 2012, the Premier stated his five point plan for Queensland for the next 10 years.

1. Grow a five pillar economy through agriculture, tourism, resources and construction
2. Lower the cost of living for families by cutting waste
3. Deliver better infrastructure and better planning
4. Revitalise front line services for families
5. Restore accountability in Government

The public road network in Queensland comprises 180,500 kilometres of mainly sealed flexible pavements, the asset valuation of which is estimated at $130 Billion. This makes Queensland's road network the largest publicly owned physical infrastructure (QML 2009). Over the period between 2008 and 2012 the average annual amount spent on Queensland roads was $3.3 Billion making it one of the highest state public expenses (RACQ 2011).

What is different about Queensland's Transport Infrastructure?

Average annual pavement temperatures are above 25°C (the design value) when bitumen becomes less viscous and hence more unpredictable.

Large portions of the road network are inundated regularly; yet we have no local data to model the effect.

Larger and heavier trucks use the roads—beef, cane, mining equipment and produce must ultimately be hauled by road yet the design principles used today are based on 1950s technology sourced from US studies, and for many different environmental conditions to that of North America and Europe

Why Pavement Research?

Notionally pavements are designed for 20 years although many experience a much shorter life cycle. If through University type R&D we can just increase that life cycle by 5% (1 year) we can reduce that $3.3 Billion annual expenditure by $165 million per year

This presentation will demonstrate how we will create a full scale testing facility and R&D facility at USC.

Dr Helen Fairweather
School of Science, Education and Engineering

Presentation: Rainfall on the Sunshine Coast: How intense can it get?

Background: The climate change projections released by the Intergovernmental Panel on Climate Change suggest that we can expect more intense rainfall events than we have experienced in the past. On the Sunshine Coast over the last several years we have certainly experienced our fair share of heavy downpours, which have caused some significant flooding events.

Aim: This research is investigating how intense these recent rainfall events, as measured at Bureau of Meteorology weather stations, have been compared to the intensity of events we should expect over varying durations for Average Recurrence Intervals ranging from 1 to 100 years.

Methods: The analysis of measured rainfall will give an indication of the intensity of rainfall at several points on the Sunshine Coast, however the real interest is rainfall intensity over the entire area. The Bureau of Meteorology also has installed radars that provide an estimate of the relative rainfall intensity in real time. The rainfall intensity is represented by 15 colours with the scale given three qualitative estimates: light, moderate and heavy. These images have been archived and in this research are being interrogated to test if regional rainfall intensities can be extracted by calibrating the colours against the known point rainfall amounts. The statistical Intensity-Duration-Frequency characteristics of the rainfall at any point are available through the Bureau of Meteorology. The most extreme events will be mapped against these statistical characteristics to demonstrate the intensity of recent events compared to what would be expected from the Bureau of Meteorology's historical database.

Findings: Preliminary analyses shows that the rainfall intensity measured at the Bureau of Meteorology's weather stations on the Sunshine Coast over the last three years exceeds what would be expected for a 1 in 100 year Average Recurrence Interval for a range of durations.

Dr Neil Tindale
School of Science, Education and Engineering

Presentation: A ‘Who Dunnit’ mystery! Who put the crap in the Noosa River?

The Noosa River is considered to be the most pristine river in SEQ, so the mystery of episodic pulses of high nutrients were of concern and impacted on river health as well as raised issues over management of the river. There was considerable public debate and finger pointing as to who or what was to blame!

So, a study of the episodic, elevated levels of nutrients in the Noosa River has been ongoing for several years and has involved several staff and students at USC, together with collaborators from other universities, government agencies, local council and the community. The multi-year, multi-disciplinary study has narrowed down the source of pollutants and has important land-use and management implications and ongoing actions. The study was also an outstanding example of collaboration between research institutions, agencies and the local community. Community engagement, participation and education were key achievements.

The presentation will cover the unravelling of the mystery and the achievements of the collaboration!
Welcome: Professor Joanne Scott, Executive Dean, Faculty of Arts and Business

The Faculty of Arts and Business Research Day celebrates and showcases the exciting research being conducted across the Sustainability Research Centre and the Schools of Business, Communication and Social Sciences. As always, I am struck by colleagues’ passion for their research and by the commitment of FAB’s academics and postgraduate students to quality research with positive outcomes for our communities. The FAB Research Day is also an opportunity to appreciate and be challenged by the variety of disciplines in which we are undertaking research and to identify opportunities for future collaborations. My sincere thanks to everyone who is contributing to the day’s success.

Introduction: Associate Professor Christian Jones, Associate Dean (Research), Faculty of Arts and Business

Welcome to the Faculty of Arts and Business (FAB) Research Day as part of the 2012 University Research Week.

The FAB Research Day is an opportunity for us to communicate and recognise our research achievements and aspirations, for colleagues to connect to design and develop new opportunities for research, and to establish new, and build on, our existing research collaborations.

Research culture in the Faculty is stronger than ever. This is our second FAB Research Day of 2012 with over 15 presenters and a University-wide attendance on 9th February. Furthermore, our Research Seminar program continues to be well attended with high quality presentations and discussions. Already in fact the seminar program is fully booked with presenters for Semester 2. Come along 12-1pm on Wednesdays during Semester to get involved.

FAB has an exciting collegial research spirit. The Sustainability Research Centre continues to demonstrate benefits of strong research collaborations within USC and with external partners. Additionally, within FAB there already exists many active research clusters, and it is encouraging to see six such research teams submitting expressions of interest to the new Research Groups call.

The 2012 University Week, FAB Research Day is a full program of 16 presenters across each of the three schools of social science, communications and business. I encourage you all to come along to learn more about the research in our Faculty and to explore ways to build on our research successes into the future.

Presentation: Iconic Species: biodiversity values in social landscapes

Iconic species are frequently used as a means to focus society’s attention in the conservation of ecological systems. Thus, the Geocrinia complex of frogs in the agriculturally diverse tourist region of south-western Australia forms a local focus to remind society of the consequences of certain land use practices. These species thus become iconic species within social contexts just as the better known Giant Panda has been used to represent the conservation focus of the World Wide Fund for Nature at a global scale.

Landscapes are inhabited by diverse human, plant and animal populations, with dynamic and interactive processes across incommensurate social and ecological scales. The premise for this presentation is that the agencies and organisations with an interest in biodiversity and resource management planning in Australia use underdeveloped intellectual and theoretical scaffolding to integrate the social elements of biodiversity values. Decision-making thus reflects limited integration of processes and tools representing disparate social, ecological and economic knowledge systems.

This research reflects a transdisciplinary approach aimed at providing an insight into the social values inherent to biodiversity conservation planning across Australia and wherever threatened species are found. The research outcomes contribute a better understanding of the interactive dynamics between knowledge, community and social value systems contributing to resilience in rural landscapes.

Presentation: What were they thinking? Cognitive themes and psychological distress associated with the September 2010 Christchurch earthquake

Eight to 10 weeks after the earthquake of September 2010 in Christchurch, New Zealand, two demographically matched communities were surveyed to compare the cognitions and mental health problems of the residents during and following the earthquake and subsequent aftershocks. The themes of the reported cognitions were linked to the individual’s scores on Acute Stress Disorder Scale (ASDS), the Patient Health Questionnaire (PHQ-9) for depressive symptoms, and the Generalized Anxiety Disorder Scale (GAD-7).

The two communities suffered differential loss of utilities during the earthquake, with the affected suburb (AV) losing services for many days, compared to the less affected suburb (HN). Unlike the second major earthquake in February 2011, no lives were lost in this earthquake.

AV had higher anxiety and depression scores. Beliefs of the uncontrollability of personal response to aftershocks predicted acute stress, depression, and anxiety responses. Further, the types of cognitive themes are discussed in relation to acute stress, anxiety, and depressive...
symptoms reported by the participants. Preliminary analysis and interpretation showed that there was variability within and between the affected suburbs, as well as, between the earthquake and the aftershock cognitions. Themes included concerns for one's safety and mortality, concerns for others, and the need for action.

Associate Professor Meredith Lawley
School of Business

Presentation: New product development in the seafood industry: A case study
Product innovation is a necessity in today’s competitive global food markets (Grunert and Valli, 2001, Costa and Jongen, 2006). However, new product development (NPD) is a risky undertaking (Stewart-Knox et al., 2003, Altintzoglou et al., 2010b); a high proportion of new food products developed never make it to market, and approximately 50% of those that do are ‘dead’ within a year (Ernst & Young Global Client Consulting, 1999). Seafood NPD faces specific challenges. The seafood industry operates in a highly differentiated market environment where raw material supply can be volatile and tightly regulated (Grunert et al., 2005). The purpose of this research was to develop and trial an accelerated NPD process for the Australian seafood industry, using blue swimmer crab as the case study. The new products were targeted at the food service sector.

The methodology used was based on the Stage-Gate® process; a conceptual and operational map designed to move new product projects from idea to launch and beyond (Cooper, 2008). The model consists of a series of stages, each with research and evaluation—and gates or decision points. We began with an ideation stage with key end users, generating 99 product ideas that were reduced to 6 ideas over a four day period. Following pilot commercial production trials, further research was undertaken at a tradeshow to prioritise the new product concepts. Further testing of commercial production preceded the launch of the new product identified as having the greatest potential, crab cakes. An initial production run of approximately 300,000 crab cakes was sold in 2 months with ongoing production runs. Work is continuing on the second product developed through this process.

This case study supported the use of the modified Stage-Gate methodology as a viable approach for NPD in the seafood industry.

Dr Clare Archer-Lean and Ms Anna Potter
School of Communication

Presentation: The return of the Watercooler TV: How the pan-platform distribution of the transnational format The Voice resonated with Australian audiences
A key trend in television production over the last ten years has been the emergence and popularity of the transnational television format. Indigenised versions of program formats such as Big Brother, The X Factor, The Biggest Loser and Masterchef attract large audiences in multiple territories. Using the performative labour of ordinary people, these programs cross cultural and national borders. They become, in the process, multi–platformed entities with which audiences interact on a number of levels, where the television transmission of the program is just one aspect of its cultural visibility.

One such format, The Voice first aired on Australian television in April 2012. The format’s extraordinary success (it attracted 3m viewers in its first weeks) in a market flooded with reality and talent quest style television raises questions around its appeal to Australian audiences and the cultural and industrial circumstances from which it emerged. What function might the localised version of this transnational format have for participants, for audiences and for the network on which it appears?

One answer appears to lie in the cultural specificity of the Australian version of The Voice which conforms to the transnational aesthetics of the format while portraying Australian-ness through its choice of 50% Australian judges and quintessentially Australian contestants. It is also a show that strategically intimates at every semiotic level a participatory vein within event television that embraces the shared experience of ordinary people appearing in the media, or the ‘demotic turn’ (Turner 2010). While the judges enjoy star status, the reciprocity, blindness and proximity between ordinary participants and established talent appears to strike a chord with Australian audiences.

This paper will examine these three tropes of: Australian-ness, participation and proximity to celebrity to tease out the cultural and industrial significance of this unusually successful television format.

Dr Prudence Millear
School of Social Sciences

Presentation: Women, work and menopause: the relevance of menopause to occupational safety and health of employed women
As a result of many years of changes in employment patterns, there are now increasing numbers of employed older women. Women’s re-entry to work benefits the economy, with studies reflecting the stronger work ethic of older workers, which may further influence productivity and performance. Menopause is a natural part of the life cycle for women and is especially relevant with the ageing workforce and the requirement to stay in the workplace for longer periods than before. While there have been advances in occupational safety and health (OSH) issues, there are some areas, including women’s life experiences and menopause in particular, that have not received much the attention and are often not considered as work-related stressors. Menopause is more commonly studied for its health consequences (i.e. poorer physical and mental health, particularly depression). Within the workplace, depression is linked to poorer interpersonal relationships with colleagues and decreased work satisfaction and performance. As such, there is a need to identify possible workplace risk factors that impact on menopause, and to determine how working women respond in turn to these occurrences. A large sample (N=395) of employed women in Australia and the UK completed an online survey that measured personal resources, workplace conditions, and how well women found their workplace responded to menopausal symptoms, in addition to their mental health and job satisfaction. Specifically, structural equation modelling found that women with more personal and workplace resources and more responsive workplaces reported better outcomes of less depression, more job satisfaction and a better experience of menopause itself. Identifying the risks in the workplace that either reduce demands (e.g. an inflexible environment) or increase resources (e.g. more optimism, autonomy and social support) available to the women during their menopausal phase highlighted the OSH concerns of women and provide suggestions to reduce any negative impacts these may have on women in the workplace.
Ms Nycole Prowse  
School of Communication  

Presentation: Shadow Play: Punishment and Addiction in Female Drug Literature
Michel Foucault’s analysis of the evolution of punishment over the past 200 years in his polemic Discipline and Punish: The Birth of the Prison (1975), parallels the history of addiction and its eventual move into the realm of jurisprudence. That is, the evolution of punishment and regulation of the subject aligns with the construct of addiction from moral and medical models of concern to one of vice. Addiction as vice is justified in a penal/judicial paradigm that progressively became less concerned with the offence, the crime, the act and more concerned with the individual: ‘what they are, will be, may be’ (Foucault 18). These ‘shadows’ embody the drug user making him/her criminal. The regulated and ritualized process of torture/pain within the paradigm of punishment is also reflected in the discourse of addiction. In Anna Kavan’s story ‘Julia and the Bazooka’ the hypodermic needle is analogized as a weapon, a ‘bazooka’ which she uses as defense against oppressive societal constraints. Kavan’s protagonist, found dead with her bazooka in her hand, intimates the hypodermic needle as both instrument of torture and of crime, shadowing and extending Foucauldian analysis to show a collapse of juridical binaries of punishment/crime; vice/virtue. The instrument of torture is one of agency and the power that is beholden to it, is within the hands of the ‘criminal/addict’. The tracks on the protagonist/addict’s body are an inscription heralding this subversion. These signs of ‘torture’, reflected in ‘confessional’ drug literature, both mimic and mock the juridical forms of punishment, power and control over the non-conforming subject. The confessor/addict is made honorable, valuable and authentic. The carnivalesque nature of the criminal's confession on the scaffold is also analogous to drug literature where rules are inverted; authority is mocked; heroes are criminals.

Dr Margarietha Scheepers  
School of Business  

Presentation: Entrepreneurship as a method: Lessons from the decision-making logic of small business owners and managers
Small business owners and managers use specific methods to exploit opportunities and create value. Worldwide the role of the small business sector is vital in economies for job creation, innovation and the creation of social value. Sarasvathy and Venkataraman (2011) provocatively argue that like the scientific method taught at school, an entrepreneurial method exists. They recommend studying decisions and behaviour of entrepreneurs to distil the principles behind this entrepreneurial method. The purpose of this paper is to determine how decisions of small business owners and managers are shaped by rational, scientific driven methods as well as emergent, entrepreneurial decision-making approaches.

A protocol analysis of eight firms in the information and communication technology, tourism and retail sectors was performed, where background information was obtained and each subject was asked to talk aloud about the start-up decisions they would make, given the same new venture decision experiment. Selective coding was used to extract relevant themes from the protocols. The findings show that small firm owner/managers were more likely to use improvisational cognitive strategies in their entrepreneurial reasoning to create new means-ends relationships during the venture start-up process. Furthermore the decision-making processes used reflected elements from rational, improvisational and effectual logic.

This paper contributes to the literature informing the debate of an entrepreneurial method. Findings confirm that most small business owners use improvisational decision-making styles, where they draw from experiential reference points under uncertain conditions. The entrepreneurial method not only incorporates emergent, effectual logic, but also draws on rational, scientific reasoning. Smalls business owner/managers should take note that both predictive, linear decision-making as well as non-predictive, nonlinear processes is the norm in this sector. Drawing from both these types of reasoning enables entrepreneurs to exploit opportunities, create new ventures and additional value in society. Educators should take note of these findings and incorporate the entrepreneurial method into their teaching.

Ms Natnaree Yodphayung and Dr Umi Khattab  
School of Communication  

Presentation: Social Networking Sites (SNSs) as strategic and Dialogic communication tools in the Australian Tertiary Sector: a textual analysis
Social networking sites (SNSs) as platforms for dialogues and cultural interactions are growing in importance, drawing increasing concern on their ethical use and impact. Interest in SNSs as strategic communication tools among tertiary institutions is on the rise as universities compete to draw students. Not enough is known about how SNSs are being utilized in the tertiary sector in Australia. Methodologically drawing from Grunig (1992), McAllister and Taylor (2007), Kent and Taylor (2002), this study examines the SNSs of five non-randomly selected universities in Australia to determine types, content and activity patterns, voices, and the extent to which SNSs enable dialogical forums whilst offering the opportunity to cost-effectively and strategically market-communicate higher education. University websites across Australia were examined and delimited based on their active use of SNSs and a sample of institutions selected purposively to reflect factors such as tier 1 and 2, city and regional as well as multi/transnational campus characteristics. Using textual analysis, two time frames were sampled, that is, January-mid February 2012 and September-mid October 2011 and altogether 95 days were analysed. Data were collected from seven SNSs such as Facebook, Twitter, Google+, Youtube, Flickr, Tumblr and Foursquare in May 2012—the period of virtual fieldwork. Findings indicate that all five universities mostly deployed Facebook, Twitter and Youtube as tactics to communicate with stakeholders, with Facebook scoring the highest ‘likes’. Generally, level of participation in Facebook varied and did not necessarily correlate with the age, rank or location of a university. Further, the voices online mostly belonged to international students and institutions tended to use SNSs largely as promotional tools. While SNSs enabled dialogue and symmetry as contended by Grunig (1992), Kent and Taylor (2002), this study argues, using Curtin University Sarawak as a case that SNSs may not necessarily contribute towards the pursuit of scholarly reputation.
Opinion leaders and complex sustainability issues: fostering response capacity to climate change

Background: Making meaningful links between the global and local scales is an enduring challenge for behavioural change studies focused on sustainability. For example, the impacts of climate change are expected to affect all sectors of society across scales; however, the extent of current engagement with responding to the risks associated with climate change is limited. It is therefore prudent to look beyond the sites of current political response to climate change to the informal sector where collective action is commonly mobilized to achieve other social objectives, to look for points of potential intersection with the aims of mitigating and adapting to the impacts of climate change.

Aims: My research contributes to the emergent field of response capacity to climate change by analysing the potential of opinion leaders at the local level to foster broader engagement with responding to climate change. It does this by (1) identifying a group of individuals who occupy positions of influence within their fields of social commitment in the Sunshine Coast region; (2) analysing the reported strategies they employ to influence the objectives they are committed to; and (3) analysing their views about climate change in terms of the rhetorical positions assumed.

Methods: The value of analysing attitudes through a rhetorical framework is that the tenuous nature of attitudes to climate change and the effect of context on how such positions can be interpreted become apparent. Community opinion leaders' evaluations of the seriousness of climate change risk for their areas of community influence also indicate the nature of information that is lacking in the public debate about responding to climate change.

Research findings: The findings of this analysis highlight the need to develop targeted information that would allow community opinion leaders to assess the risks from climate change in their sectors and to determine responses that support their community objectives.

Overlapping regional mechanisms of security governance: Adlerian concepts in Northeast Asia

The Northeast Asian region's predilection for regional groupings stretching back decades warrants a fresh examination of how regional leadership might seek to reconfigure a strategic security bloc. This paper continues an ongoing exploration of the potential for a northeast Asian security community, the significance of natural resources as an identifiable, mutually-constitutive norm of that community, and advances on the theoretical debates which operate at the juncture of the so-called 'East and West' discourse in International Relations. The recent growth of China's status shadowing Japan's earlier economic pre-eminence, and the historical enmity which figures in most analyses of the region's relationships, has encouraged most who view the region to examine it in terms of a (neo)classic balance of power contest. There is little in the region, many surmise, to advance the idea of a pluralistic security community. The approach embodied within the security community struggles to assert its potential when 'classical' balance-of-power scenarios begin to once again dominate regional relations. It provides a timely opportunity to extend the formative precepts of the very sort of case study proposed by Adler and Greve, that examine what might be done when 'security community practices become institutionalised in China's halls of government and begin competing for attention and resources with classic balance of power practices' (Adler and Greve, 2009: 84). What might a Northeast Asian security community mean for the region and to what extent can the theoretical concept withstand the practical test of bilateral or intraregional disputes to be explored in this paper?

Zapping In: Insights into consumer behaviour—analogue past, digital present, cyber future

Advertising is a multi-billion dollar business and is very much a global industry. The objective of advertising has always been to promote the brand, product or service and to elicit buy-in to this promotion. As consumers we are bombarded with advertising messages, literally thousands every day and we have access to more information than ever before to guide our purchase decision-making. Not surprisingly we tend to spend our life ‘zapping out’, avoiding advertising and the world of digital-ware. A research study undertaken internationally with leading consumer insight planners as an integral part of the development of a
book on understanding the digital consumer suggests that the big shift is not thinking about advertising as such, but rather thinking about content that consumers can propagate through their own networks. It is argued that no more should we talk in traditional terms about ‘What is the proposition, what is the message?’ but rather ‘How can we inspire behaviour change through this thing we are going to do—this piece of content, this activity, this activation?’—a shift from message-based communication to behaviour change activity through content.

While much has been written on consumer understanding and persuasion in traditional media environments, little has been documented on the effects of the use of online and social media. As this research study identifies, today it’s not simply about bombarding people with messages, it’s about understanding how consumers behave and interact in the digital space. It’s about constructing a two-way communication process, a conversation between the consumer and the marketer. As one senior insight planner noted, “Now it’s about producing content that’s bloody interesting, bloody entertaining, or bloody useful. It’s about convincing people to zap in, to connect and join the conversation.”

Dr Uwe Terton
School of Communication

Presentation: ‘Jumping the Fence’–a computer-based educational adventure challenging children to interact with the natural environment through physical exploration and experimentation

The potential benefits of computer games in education, training and entertainment are widely appreciated, but their downside is also equally a matter of concern. On the other hand, not everything about playing computer games is bad. Proficiency with computers has become a key part of the skill set required by modern children and familiarity with interactive technologies is essential for success in contemporary society.

Research question: Would it be possible to design a computer based learning game that actually required students to get up from their seats and move around in their nearby environment in order to engage with and advance in the game? In answer to this question, the idea of creating an educational game called Jumping the Fence (JTF) was born.

It is understood that computer game based learning appeals to the new generation of learners because computer games can immerse players through deep level of engagement, intricate and dynamic structures, high quality visuals and audio and by providing highly rewarding experiences with near instantaneous feedback.

The Jumping the Fence project utilises design-based research as its primary methodology, since this approach allows for the carrying out of both design and testing in the context of real-life settings. Although a combination of design-based research and situated design models inform the primary methodology, acquiring both quantitative and qualitative data to support the developmental processes is also integral to this project.

JTF was designed from the outset to make a connection between what the students learned from their computers and then realising this knowledge in a real-world scenario in which situated learning occurred. JTF allowed the students to learn by doing and to learn from their own (moderated) failures. The students clearly came to understand that a commitment to improving and maintaining their environment was a long term endeavour.

Dr Wendy Spinks
School of Business

Presentation: Measuring service performance

In order to evaluate the efficacy of their services, organisations, including those funded by the public, need to be able to identify and measure the factors that influence consumers’ evaluation of those services. This aim of this research was to develop and test a new instrument which measures consumers’ perceptions of the performance of health and well-being service providers. A triangulation of methods (interviews, focus groups, expert panel and an online survey) was used to collect qualitative and quantitative data in order to achieve this aim. The main statistical analysis used was structural equation modeling in order to test two different models of service performance measurement. It was found that the new Consumer Perception of Service Performance (CSP) instrument developed for this research project provided a more reliable and valid instrument than the traditional SERVQUAL instrument. In addition, the CSP model enables organisations to determine what areas of the service need improvement as well as the base to measure change over a time period. This increased understanding would ultimately help improve health and well-being services for current and future communities.
THE THREE MINUTE THESIS COMPETITION

(Higher Degree by Research Students)

Following the success of the Three Minute Thesis (3MT) presentations by Higher Degree by Research (HDR) Students in 2011, this has become an annual event.

Thirteen HDR students competed in heats recently and the best seven presentations will be competing in the Final on Friday 13 July. This provides our HDR students with research training experience as well as a dynamic method of raising awareness of the diversity of HDR activity.

The 3MT Competition was developed by the University of Queensland in 2008. It is a skills development activity which challenges HDR students to explain their research project to a non-specialist audience in just three minutes. The 3MT Competition is not an exercise in trivialising or "dumbing-down' research. Instead the aim for presenters is to engage the audience without reducing research to entertainment value alone. USC's 3MT winner will have the opportunity to compete in the 2012 Australian and New Zealand 3MT Competition later this year.

Nutrition at the Commonwealth Games
Sarah Burkhart, School of Health and Sports Sciences, Faculty of Science, Health, Education and Engineering

Jane Austen and the Elvis impersonator
Janet Lee, School of Communication, Faculty of Arts and Business

The lived experience of disability in East Timor
Jane Shamrock, School of Health and Sports Sciences, Faculty of Science, Health, Education and Engineering

What is the effect of strategic choice and capabilities on performance in the Australian seafood industry?
Daniela Schwarz, School of Business, Faculty of Arts and Business

Effects of omega-3 fatty acids on regulated secretory pathways in human endothelial cells
Corinna Burgin, School of Health and Sports Sciences, Faculty of Science, Health, Education and Engineering

Social representations of climate change: Understanding the public’s thinking through everyday discourse and common sense
Kate English, School of Social Sciences, Faculty of Arts and Business

My TERN (Take Emotional Responsibility Now)
Jane Foster, School of Health and Sports Sciences, Faculty of Science, Health, Education and Engineering
In 2011, the University of the Sunshine Coast was awarded $5.4m as part of the Commonwealth Government’s Collaborative Research Networks (CRN) Program, which funded 12 of Australia’s less research-intensive and regional universities to strategically build research capacity through working with partnering universities and related organisations in areas of common interest. USC teamed up with Griffith University and the University of Tasmania to focus on building collaborative activities in the areas of:

**AQUACULTURE**

**FOREST SCIENCES**

**WATER SCIENCES**

**SUSTAINABILITY**

CRN funds are also used to develop the work of the USC Centre for Leadership in Research Development (CLRD) with collaborative advice from Professor Paul Burnett, Dean of Research and Research Training at the Queensland University of Technology.

In order to build research capacity through these collaborative partnerships, USC chose to focus on bringing in a cohort of well qualified researchers under the CRN funding as well as provide USC Research Fellowships and hosting to a select group of exciting new researchers who bring a depth of experience and enthusiasm to building research momentum at USC. Further appointments each year should see USC building a sustainable reputation for its growing strategic research initiatives well into the future.

**SUSTAINABILITY RESEARCH**

**CRN Professorial Research Fellow:**

**Associate Professor Neil Powell**

Neil Powell joins USC as a CRN Professorial Research Fellow who was based in Sweden where he worked with the Stockholm Environment Institute (SEI). Neil’s research, training and development action is geared towards addressing intractable problems and resource dilemmas in the context of natural resource governance and management.

The approach focuses on the inefficiencies and ambiguities of policy implementation in contexts characterised by abrupt environmental change and controversy. His work promotes understanding of how structures and stakeholder agency can be best deployed to reconcile contemporary intractable issues such as climate change adaptation and integrated agro-environmental actions.

Key conceptual themes in his research are: social learning, action research, multi-stakeholder processes, intractability, dilemmas, governance, agency, livelihoods and adaptation.

Associate Professor Powell has developed numerous high level programmes. Recent examples include: the Swedish International Agricultural Network; a multi stakeholder platform for government, civil society, private, research and education sectors); the governance and policy adaptation component within a large inter-regional EU project entitled Baltic Compass; and an international Masters Programme in Integrated Water Resource Management.

Prior to joining SEI in 2006, Neil Powell taught, supervised and undertook research as a Senior Lecturer at the Swedish Agricultural University, Uppsala. He was also responsible for Swedish water resource development cooperation in Southern Africa at the Swedish International Development Cooperation Agency (Sida).

Associate Professor Powell has actively worked in a number of country contexts including: Namibia, South Africa, Zimbabwe, Malawi, Botswana, Ethiopia, Brazil, India, Laos, Vietnam, Thailand, Indonesia, Baltic Countries, Russia, Australia, Sweden, Norway, Italy and France.

**CRN Research Fellow:**

**Dr Pedro Fidelman**

Before joining the University of the Sunshine Coast, Pedro was a research fellow with the ARC Centre of Excellence for Coral Reef Studies at James Cook University (2008-2011), and prior to that, in Brazil, he held postdoc positions with the Centre for Sustainable Development of the University of Brasilia and ITA Institute of Technology (2007-2008). Pedro’s research focuses, in a broad sense, on environmental governance institutions, with special focus on institutional and policy analysis. Particular areas of experience include coastal and marine social-ecological systems, climate change adaptation, catchment and water management, and common-pool resources governance. The geographic scope of his research includes Australia, Brazil and the Southeast Asia-Pacific region.
CRN Research Fellow:

Dr Christine (Chris) Jacobson

Dr Chris Jacobson joined the Sustainability Research Centre in 2012 as a CRN Research Fellow, having previously worked at The University of Otago (New Zealand), The University of Queensland (Australia) and Lincoln University (New Zealand) in both research and teaching positions. Chris has had a CI role on over $1.5 m of competitive research grants, 16 peer reviewed publications, international awards and invited seminars. Her research focusses on improving environmental management through better combination of communities’ and agencies’ experiences and academic wisdom. Her work is based on 3 key strands:

Improving evaluation information use, e.g. developing processes to improve the use of evaluation information to support management decision-making

Adaptive management, e.g. eight year project predicting and assessing the outcomes from removing pest herbivores from forests; and

Cross cultural approaches to environmental management, e.g. policy analysis on the recognition of Indigenous knowledge, and analysis of the significance of customary fisheries institutions in promoting cultural resilience.

Chris has supervised three PhDs (feminist systems theory, multivariate analysis of evaluation datasets and the role of squatter communities in landscape change) and has taught in New Zealand, Australia and Vietnam in adaptive management, environment and society, participatory and soft systems research and environmental management systems.

FOREST SCIENCES RESEARCH/FORESTRY OPERATIONS

CRN Research Fellow:

Dr Helen Nahrung

Dr Helen Nahrung has over 12 years of experience in working on pest insect biology and ecology towards sustainable pest management methods in plantation forestry. Her expertise is in insect-plant interactions, but she has also worked extensively with natural enemies, development of predictive population models, and insect reproductive ecology. She is also interested in the applied use of semiochemicals/chemical ecology for pest monitoring and management. Her current research projects include landscape risk modelling to predict insect attack, and tree physical and chemical defence against insect borers. She has worked on insect pests of several tree species, including red cedar, teak, eucalypts and pine, and has conducted extensive fieldwork from Queensland’s tropics to temperate Tasmania.

CRN Research Fellow:

Dr Jules Freeman (based at University of Tasmania)

Dr Jules Freeman is a CRN research fellow, based at the University of Tasmania (UTAS). Jules works in the field of molecular genetics where his research interests include biogeography, DNA fingerprinting, linkage and quantitative trait loci (QTL) mapping in Eucalyptus. His recent research uses linkage mapping and QTL analysis to link the recently released eucalypt genome sequence to phenotypic variation, with implications for all woody plants. This work has focused on the genetic control of complex traits including, resistance to fungal disease, plant secondary metabolites, wood properties and growth. Jules has contributed to collaborative projects involving comparative linkage mapping and the construction of a reference linkage map for Eucalyptus as well as QTL analysis of the developmental traits vegetative phase change and flowering. Jules also mentors PhD students conducting similar studies in Acacia and Hop. His future plans, in collaboration with UTAS and USC researchers, include investigating the genetic control and mechanisms of Eucalyptus/Corymbia resistance to the introduced myrtle rust and the extent of cross resistance with native pathogens and pests.

CRN Research Fellow:

Dr Shahla Hosseini-Bai (based at Griffith University)

Shahla has just completed her doctorate at Griffith University. Her research interests are focused on investigating agroforestry management strategies, forestry, plant and soil eco-physiology, carbon and nitrogen cycling in terrestrial ecosystems and climate change mitigation in terrestrial ecosystems. Her interests also include horticulture, conservation and biodiversity.

CRN Senior Research Fellow:

Dr Chengyuan (Stephen) Xu (based at Griffith University)

Dr Xu is based in the Environmental Futures Centre of Griffith University and is mentored by Professor Zhihong Xu, the Centre Director. He received his PhD from the Department of Earth and Environmental Science at Columbia University of New York City in USA and then worked at CSIRO Entomology Long Pocket Laboratory (2006–2009) and then the University of Southern Queensland. Dr Xu’s primary research focus is on plant ecophysiology, especially on plant physiological responses to changing climatic factors (e.g. elevated CO2 and warming). He also explores physiological and evolutionary mechanisms that contribute to successful invasion of alien plants. He has published 18 papers in quality journals, including the top journals in his field such as Ecology Letters, New Phytologist and the Journal of Ecology. During his CRN research fellowship tenure, Dr Xu will focus on (1) adaptation of invasive species and biosecurity, (2) plant ecophysiology and productivity, and (3) carbon cycle and carbon sequestration. These scientific topics will be addressed in the context of climate change.
Professor of Forestry Operations:

Professor Mark Brown

Professor of Forestry Operations, USC
Australian Forest Operations Research alliance
Director (AFORA), USC
Harvesting and Operations Program Leader &
Manager Industry Engagement, CRC for Forestry
Mark has worked as a researcher and program
manager in industry cooperative applied forest
operations research for over 15 years in Canada and Australia. As a
researcher, Mark focuses on transportation efficiency and as a research
manager has a broader focus on the entire forest product supply chain.
Mark has always focused on the implementation of research results
for impact. In his current roles as the industry engagement manager
at CRC for Forestry and director of AFORA he is using his experience
in the application research results to industry across a full range of
applied forest research. Mark represents CRC for Forestry and USC
internationally on the editorial committee of the International Journal of
Forest Engineering, section editor of the Forest Energy Journal, member
of the executive of COST Action FP0902 on biomass harvesting research,
committee member on ISO-TC 248 developing sustainability criteria for
bioenergy, and as the founding chairman of the Southern Hemisphere
Forest Operations Research Committee (SHFORC).

WATER SCIENCES

CRN Senior Research Fellow:

Dr David Schoeman
(International appointment from South Africa/Northern Ireland)

Dr Dave Schoeman is a quantitative marine ecologist with 16 years of professional experience, having worked as a fishery scientist in South Africa, and as an academic in both South Africa and the UK. He joins the CRN at USC with the aim of strengthening research into the ecology of ocean-exposed sandy beaches and climate-change impacts.

AQUACULTURE (GENECOLOGY)

CRN Research Fellow:

Dr Nguyen H. Nguyen

Dr Nguyen has been working in the areas of fish breeding and genetics, including the design of genetic improvement programs, development of breeding objectives, selection strategies and genetic evaluation systems. Dr Nguyen joined USC in March 2012 from the WorldFish Centre.
During his time working with WorldFish, Dr Nguyen was involved in developing several genetically improved strains (tilapias, carps, prawns, shrimps, catfish and other commercial species) for aquaculture. He has an international working network with national research institutions in Asia and Africa. In his current position, Dr Nguyen is involved in genetic improvement programs for Banana prawn, Kingfish, and other species of future economic importance.

LIFE SCIENCES

USC Research Fellow:

Dr Renfu Shao (Genecology: Mitochondrial Genomics)

Dr Renfu Shao is a USC Research Fellow. He received his PhD at the University of Queensland (UQ) in 2003. He was then awarded an international postdoctoral fellowship funded by the Japan Society for the Promotion of Science (JSPS), and an Australian Postdoctoral Fellowship funded by the Australian Research Council (ARC).
He won an ARC Discovery Project grant in 2011. He has also won an UQ Early Career Research Grant in 2007, a UQ ReTeach grant in 2009, and an Australia-China Science & Research Fund group mission grant in 2012.
Dr Shao’s research interest spans from the evolution and function of mitochondrial genomes to novel therapies of mitochondrial genetic diseases. He discovered in 2009, for the first time, an extensively fragmented mitochondrial genome in multi-celled eukaryotes. This discovery was published by the journal Genome Research for the special issue that celebrated the 200th anniversary of the birth of Charles Darwin and the 150th anniversary of the publication of his work ‘On the Origin of Species’. The journal Nature also commented on this discovery in its Research Highlights section in April 2009.
Dr Joanne Macdonald (Molecular Engineering)

Dr Joanne Macdonald is a Senior Lecturer in Molecular Engineering and member of the GeneCology Research Group. She also holds a joint appointment with Columbia University (New York, USA) where she is an Assistant Professor in Clinical Medical Sciences. Previously Joanne developed a molecular automaton able to play tic-tac-toe interactively with a human opponent, constructed from a network of more than one hundred different DNA molecules. This research represented the first DNA-based medium-scale integrated circuit, and has been featured in popular science magazines such as the New Scientist and Scientific American. She was also involved in the pharmacological development of an enzyme with improved thermal stability for the treatment of cocaine-intoxication. At USC Joanne is establishing a research focus in molecular engineering within the Engineering discipline. This research involves the intentional design of molecules beyond their narrow range of conditions, and their incorporation into new functions that do not currently exist in nature.

Dr Kate Mounsey (Scabies Immunopathology)

Dr Kate Mounsey completed her PhD in 2007 at the Menzies School of Health Research in Darwin. Her PhD and early post-doctoral research focused on elucidating the molecular basis of emerging drug resistance in scabies. Moving to the Queensland Institute of Medical Research in 2008, she received an NHMRC Training Fellowship in Aboriginal and Torres Strait Islander Research. During this time she was a lead contributor to the establishment of a world-first porcine model of scabies, facilitating the development of new research directions for scabies. Dr Mounsey commenced at the University of the Sunshine Coast in 2012, and has been awarded a highly competitive ARC DECRA fellowship, with research to focus on immunopathology and host parasite interactions in scabies. Dr Mounsey has a strong commitment to community engagement, research dissemination and translation, particularly in the area of Indigenous Health. She has consolidated her interest in multidisciplinary approaches to research by completing a Masters in Public Health, and is involved in community based research to improve skin health in Indigenous and other disadvantaged populations.

Dr Scott Cummins (Molecular Biology)

Dr Cummins’ research is focused on understanding the molecular factors that regulate animal chemical communication systems. He has undertaken postdoctoral research within this area at The University of Texas Medical Branch and The University of Queensland, before joining USC in 2011. His multidisciplinary approach to research, which integrates genomic, proteomic, cell biology and behaviour methods, often leads to exciting outcomes that answer fundamentally important biological questions. For example, unique insights have been obtained into aquatic pheromones that influence animal behaviours such as attraction, aggression and mating.
Social Networking Sites (SNSs) as Strategic and Dialogic Communication Tools in the Australian Tertiary Sector: a textual analysis

This study examines the Social Networking Sites (SNSs) of five universities in Australia to determine the extent to which SNSs enable dialogue whilst offering the opportunity to strategically market-communicate higher education. Using textual analysis, seven SNSs such as Facebook, Twitter, Google+, Youtube, Flickr, Tumblr and Foursquare were analysed over 95 days in May 2012. Findings reflect that universities mostly deploy Facebook for promotion and level of participation in Facebook does not correlate with age, rank or location of a university. While SNSs enable dialogue especially with international stakeholders, they do not seem to contribute towards the pursuit of scholarly reputation.

Identifying genes involves in regulating animal reproduction

Functional genomics is a field of molecular biology that attempts to make use of the vast wealth of data produced by genomic projects (such as genomic sequencing projects) to describe gene and protein functions and interactions. One exciting area of functional genomics aims to identify those genes involved in regulating animal reproduction.

The Genecology Functional Genomics Research Group is investigating genes and their gene products (such as neuropeptides, hormones and pheromones), which control a variety of reproductive processes within molluscs and fish. We provide an interactive display that showcases the animals we research, including snails, oysters, sea slugs (all molluscs) and tilapia (fish). This includes a demonstration of pheromone-induced attraction and hormone-induced egg laying in sea slugs, aestivation and ‘love dart’ shooting in snails, and larval development and mouthbrooding in tilapia.

Fishy Business

Understanding what consumers’ value is the fundamental building block for successful marketing strategies. Without this knowledge, the development of effective marketing strategies based on compelling customer value propositions does not occur. Considerable consumer research has been conducted by the Australian Seafood CRC on seafood consumption patterns and behaviour. The research on various species undertaken in partnership with the University of the Sunshine Coast has and continues to add wealth to that knowledge base. It has initiated programs to feedback information to industry focusing on the practical implications of findings to increase consumption of Australian seafood and improve returns to companies.

High performance school-age athletes: A study of athletes’ views on conflicting demands

This presentation presents findings and the implications of research into high performance athletes who are still at school, who are leading two lives, that of a full-time school and that of a full-time athlete. High performance athletes are defined as those in national or international senior or age grade completion, or in academy/talent identification squads. The research focussed on how these athletes cope with extreme demands of this double life they lead by listening to their perceptions of their lives. This study was a cross-sectional design using qualitative techniques, in an interpretivist paradigm. Data collection was through interviews. NVivo™ was used to analyse interviews from participants, made up of the nineteen current and past school-age high performance athletes across a range of sports. The findings of this study were categorised into physical, social, educational, mental and economic issues. In particular, athletes in this study identified specific problems they do not seem to contribute towards the pursuit of scholarly reputation.

Innovation Centre Sunshine Coast

The Innovation Centre Sunshine Coast (ICSC), a University of the Sunshine Coast Company, aims to create new jobs in new industries in the Sunshine Coast region. The ICSC currently works with over 30 businesses in the ICT, clean technology, health technology and creative industries, offering support for entrepreneurs and growing companies.

Ecological implications of standard fire mapping approaches for fire management of the World Heritage property, Fraser Island, Australia

The characterization of spatio-temporal fire patchiness is requisite for informing biodiversity conservation management in many landscape settings. Often, conservation managers are reliant on manually derived fire history mapping products which delineate fire perimeters. An alternative standard approach concerns the application of remote sensing, typically using band combination indices obtained from relatively fine-scale imagery sensors. For Fraser Island, a World Heritage property in sub-tropical, fire-prone eastern Australia, we contrast diagnostic fire regime characteristics for different vegetation types over a twenty year period (1989-2008) derived from historical manual, and remotely sensed, fire mapping approaches. For the remote sensing component we adopt a commonly used approach utilizing a different normalized burn ratio (dNBR) index derived from Landsat Thematic Mapper imagery. Manual mapping resulted in over-estimation of fire affected area (especially large fires) and fire frequency. The dNBR procedure resulted in under-estimation of fire affected area under low fire severity conditions, and over-estimation of fire patchiness. Of significance for conservation management, (1) age-class and related distributions for flammable vegetation types differed markedly between the two mapping approaches, (2) regardless, both methods demonstrated that substantial fuel loads had accumulated in flammable vegetation types by the end of the study period; and (3) fuel age was shown to have a more significant affect than seasonality on the incidence of very large (>1000 ha) fires. The study serves as an introduction to ongoing research concerning the measurement and application of fire patchiness to conservation management in flammable eastern Australian vegetation types.
To date the Innovation Centre has supported the start-up and growth of over 90 businesses, creating over 350 jobs. The ICSC has a number of companies who have been engaged in research with USC in the past, including Auzion, Phoenix Eagle and Nano Nouvelle, as well as many businesses who would like the opportunity to engage with USC for research partnerships.

Office of Research–Meet the Team

The role of the Office of Research is to promote and support advancement of USC’s research and research training profile, performance and culture. The Office of Research has a wide range of functions and services which support research and research training across the University including the management of internal and external research grants, the management and reporting of institutional research data and publications data, the administration of research ethics, the administration of higher degree by research candidature, the management of IP and research commercialisation and the provision of strategic advice regarding institutional planning and policy management in research and research training.

Building Value in the Forest Supply Chain–Forest Industries Research

The foundation of effective forest supply chain management is to recognise the influence across all the links in the chain, have a clear understanding of its place and impact within the broader forest value network while working with a sound understanding of how to effectively manage and improve value. This developing research area at USC is building a research team and approach that delivers research outcomes across the entire forest supply chain. From developing better trees to better forest management strategies and systems right to developing better value-adding usage of the forest and timber, this area of research is focused on leading innovation for forestry in Australia through effective applied research.

Effectuation as an Entrepreneurship Method to Create Value in Societies

Worldwide entrepreneurs are seen as vital in economies for job creation, innovation and the creation of social value. Recently prominent scholars have argued that similar to the scientific method taught at school, an entrepreneurial method exists. Therefore we study the decisions and behaviour of entrepreneurs to distil the principles behind this entrepreneurial method. The purpose of this exhibition is to show how recent research on groups such as expert entrepreneurs, female entrepreneurs and intrapreneurs, small business owners and managers are shaped by rational, scientific driven methods as well as emergent, entrepreneurial decision-making approaches. Implications for theory and practice are showcased.

Engage Research

Engage Research develops systems and solutions for social change. Engage Research facilitates people to engage more effectively and meaningfully in their social environments. Engage Research develops processes to empower people to flourish in their worlds, have positive experiences, make social connections, find meaning, experience accomplishments and achieve wellbeing (environmentally, physically, emotionally).

Engage Research uses digital technology to engage with social issues and to provide communities themselves with a voice and opportunities to engage more meaningfully and effectively in society. Building on digital technologies which are familiar to users such as computer games, smartphone/tablet applications, social networks, and interactive media and artwork we provide free to use environments for users to become informed, inspired, motivated to make changes for the social good, and to collaborate to find original solutions to challenging social problems.

Our teams comprise academics from mental health, positive psychology, nursing, health promotion, social sciences, counselling, planning, art and design, information technology, game design, education, engineering, HR and business disciplines including students, early career and established researchers who engage in cross-disciplinary collaboration to generate cutting edge, innovative solutions.

Research Data Management

Research data—surveys, tests, collections, recordings—underpin all research. With changes to the requirements by funding bodies and publishers and a global interest in collaboration the spotlight is on research data. A collaboration between the Library, Office of Research and IT Services is working to ensure USC has the right environment to enable researchers to effectively manage the data produced throughout research. USC is working with the Australian National Data Service to give researchers at this university the opportunity to promote their datasets as another avenue for peer recognition and citation.

USC Library

The Library offers both resources and expertise to support research. As well as providing information resources with books, journal articles and document delivery, we have tools and skills to help with your reference lists, research methodology, publication and career development. Our display at the Research Expo highlights what we can offer researchers.

Inflammatory Processes in Health and Disease Research

Asthma development and diagnosis in Indigenous populations remain poorly understood and can only be clarified through a combination of advanced biomedical research and more rigorous community studies. This study aims to investigate the clinical significance of cross-allergy between scabies mites and house dust mites in scabies endemic Australian Aboriginal communities; determine the sensitivity of current skin prick and serological tests for house dust mite allergy; and aid the development of improved cost effective intervention measures for asthma in Aboriginal populations.

Sustainability Research Centre

The Sustainability Research Centre will present summaries of its recent research. This ranges from major projects related to community adaptive capacity to respond to climate change and science uptake in the coastal zone (through CSIRO) to PhD projects. The binding element of projects are the human and social dimensions of change and the preparation of communities for a sustainable lifestyles through improved resilience to change pressures. The current and future research focus of our recently appointed CRN fellows will be highlighted.

Allied Health, Public Health and Performance Research

Investigating innovative applied research in health and performance and translating into practice to enhance the quality of life of people in the region, state, nation and world.
POSTER PRESENTATIONS

How will Australian midwives respond to the new re-registration requirements?
Mrs Michelle Gray, School of Nursing and Midwifery, Faculty of Science, Health, Education and Engineering

The impact of water temperature and dietary changes on bacterial population and functional status of gut microflora of Atlantic Salmon
Miss Christina Neuman, Miss Eva Hatje, Miss Hollie Stevenson, Associate Professor John Bowman, Food Safety Centre Tasmanian Institute of Agriculture, University of Tasmania and Associate Professor Mohammad Katouli, School of Health and Sports Sciences, Faculty of Science, Health, Education and Engineering

Civil Engineering Honours Research Projects
Civil Engineering Final Year Honours Students, School of Science, Education and Engineering, Faculty of Science, Health, Education and Engineering

Tertiary Preparation Pathways: A Model for Alternative Entry to Universities
Mr Jack Tucker, School of Science, Education and Engineering, Faculty of Science, Health, Education and Engineering

Population dynamics of *Escherichia Coli* and *Enterococcus* spp. in an urban river after an extreme weather event
Miss Nicole Masters, Dr Aaron Wiegand, Miss Jasmin Thompson, Associate Professor Mohammad Katouli, Faculty of Science, Health, Education and Engineering

Prevalence and persistence of *Vibrio* species in the Atlantic Salmon hindgut
Miss Eva Hatje, Miss Christina Neuman, Associate Professor John Bowman, Food Safety Centre Tasmanian Institute of AGRICULTURE, University of Tasmania and Associate Professor Mohammad Katouli, School of Health and Sport Sciences, Faculty of Science, Health, Education and Engineering

New directions for Papuan teachers
Professor Merv Hyde, Dr Bill Allen and Ms Maureen O'Neill, International Projects Group, University of the Sunshine Coast

Food security, social justice, environmental justice and climate change: points of adaptation in food-systems
Dr Angela Wardell-Johnson, CRN, University of the Sunshine Coast, Nazrul Islam, Department of Agriculture and Food Western Australia, Tanmoy Nath, Department of Agriculture and Food Western Australia, Brian Stockwell, Department of Education, Training and Employment

Smoking prevalence, knowledge, attitudes and beliefs of nursing students at the University of the Sunshine Coast
Mr David Duncan, School of Nursing and Midwifery, Faculty of Science, Health, Education and Engineering

Research in Women, Children and Family Wellbeing
Dr Margaret Barnes, School of Nursing and Midwifery, Faculty of Science, Health, Education and Engineering

“Turn your back, walk away and let me die!” Paramedics and end of life decision making
Dr Brian Sengstock, School of Health and Sport Sciences, Faculty of Science, Health, Education and Engineering

High performance school-age athletes: A study of athletes’ views on conflicting demand
Ms Maureen O'Neill, School of Science, Education and Engineering, Faculty of Science, Health, Education and Engineering

Sleeping Beauty & Cupid…A snail tale
Mr Kevin Adamson, Dr Scott Cummins, Dr Anna Kuballa, GeneCology, Faculty of Science, Health, Education and Engineering

Social Networking Sites (SNSs) as Strategic and Dialogic Communication Tools in the Australian Tertiary Sector: a textual analysis
Miss Natnaree Yodphayung and Dr Umi Khattab, School of Communication, Faculty of Arts and Business

Investigating innovative applied research in health and performance and translating into practice to enhance the quality of life of people in the region, state, nation and world.
Professor Marion Gray, Dr Fiona Pelly, Associate Professor Melainie Cameron, Associate Professor Peter Dunn, Dr Ann Roiko and Dr Bill Lord, School of Health and Sport Sciences, Faculty of Science, Health, Education and Engineering

How do students formulate the problems involved in designing a local skate park?
Dr Margaret Marshman, School of Science, Education and Engineering, Faculty of Science, Health, Education and Engineering

Prototype smart sensors for Rabies and Australian Bat Lyssavirus
Pavithra Vijayakumar and Dr Joanne Macdonald School of Science, Education and Engineering, Faculty of Science, Health, Education and Engineering

Cultivating transformational notions of nursing in nursing students: A research proposal
Ms Theresa Downer, School of Nursing and Midwifery, Faculty of Science, Health, Education and Engineering
HOW TO LOCATE ROOMS ON CAMPUS

The University has a naming convention for tutorial rooms, lecture theatres, computer laboratories and offices on campus. The numbering system identifies (in order) the building, the level, and the room number. Example: KG.46 is Building K, ground floor, room 46. Lecture theatres are identified by the letters LT and a number. Example: LT7 is Lecture Theatre 7.

Building B—Administration
Alumni Relations
Financial Services
Foundation
Graduate Centre
Human Resources
Marketing and Communications
Office of Learning and Teaching
Office of the Pro-Vice-Chancellor (Corporate Services) and Chief Financial Officer
Office of the Pro-Vice-Chancellor (Engagement)
Office of the Pro-Vice-Chancellor (Research)
Office of Research
University of the Third Age (U3A)

Building C—Chancellery
Office of the Vice-Chancellor and President
Office of the Deputy Vice-Chancellor
Office of the Pro-Vice-Chancellor (International and Quality)
Buranga Centre (Indigenous Services)
Café C
Executive Projects Unit
Faculty offices
Lecture Theatre 7
Strategic Information and Analysis Unit
Student Administration (Student Central)
Student Services (Student Central)
Tutorial rooms

Building D—Faculty of Arts and Business
Faculty Student Centre and general enquires
Faculty offices
Tutorial rooms
5 x 24-hour computer laboratories

Building E—Collaborative Futures Project
(Under construction)

Building H—Faculty of Science, Health, Education and Engineering
Faculty Student Centre and general enquires
Faculty offices
Nursing teaching wards/laboratories
Science wet laboratories
Sports science laboratories
Flexible teaching spaces
2 x advanced computing laboratories

Building I—Faculty of Science, Health, Education and Engineering
Office of the Executive Dean (FOSHEE)
Faculty offices
Lecture Theatre 3
Lecture Theatre 4
Research laboratories
Tutorial rooms

Building J—Information and Communications Technology
Career Connection
Co-op Bookshop
Education Queensland
English Language Programs
ITD computer laboratory
Information Technology Services
Learning Connections Room
Mail and Print Services
Reflection room
Respite room
Tutorial rooms
USC International
2 x 24-hour computer laboratories

Café J
Piazza
Art Gallery

Building K—Faculty of Arts and Business
Office of the Executive Dean (FAB)
Faculty offices
Lecture Theatre 1
Lecture Theatre 2
Lecture Theatre 5
Lecture Theatre 6
Lecture Theatre 8
Tutorial rooms
1 x 24-hour computer laboratories

Library
Information Commons
Information Services Branch
Masters Student Centre

Building M—Faculty of Science, Health, Education and Engineering
Science, Engineering and Paramedic teaching facilities

Faculty of Science, Health, Education and Engineering
Teaching laboratory
Research offices

Glasshouse
Transit Centre
Bus interchange
Greenlink to Chancellor Park
(buses and pedestrians only)

Childcare Centre
Facilities Management
Events Services
Grounds and Works
Security
University Fleet

Bicycle Hub
Showers and change rooms

Innovation Centre
Business Accelerator
Business Incubator
Sustainability Research Centre

University Club (Uni Club)
Club function room
Toilet and shower facilities

Student Guild
Sports Stadium
USC Sport offices
3 x outdoor courts (futsal, basketball, netball, volleyball, badminton and tennis courts)

Health and Sport Centre
Faculty offices
Gym
Health Clinics
Nutrition and dietetics kitchen
Occupational therapy rehabilitation room
Psychology clinic
Teaching laboratories

CARE FOR OUR CAMPUS

Please do not litter

Use the bins provided

Domestic animals are prohibited on the campus at all times (at least 3m).

Keep a safe distance from the kangaroos

Drive slowly on campus roads

Video surveillance is used on campus.

CAMPUS SECURITY

Emergencies: 5430 1111 (on campus)

Open parking (student and visitor)
Restricted parking (staff)
Motorcycle parking
Secure bicycle parking
Bicycle rack
Transit Centre (Bus Interchange)
Shared pedestrian cycle path
Student Central
(Student Administration and Student Services)

Lecture Theatre
ATM
Public payphone
Parents room
Loading Zone (service vehicles only)
Taxi pick-up
Pick-up and drop-off zone

Shared Ride car park
(2 occupants 7.30–9.30am M–F)

Shared Ride car park
(2 occupants 1.30–5.30am M–F)

Observer speed limits on campus as signed.

Drive with care in shared pedestrian zones.

Visitor surveillance is used on campus.

University of the Sunshine Coast
The best of both worlds

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