

# RESEARCH HIGHER DEGREE PROGRAMS

UQ offers world-class research higher degree programs to give you a leading edge.

Dr Lucy Carter conducted her PhD study into genetically modified (GM) plants analysing the risks and benefits.



# RESEARCH HIGHER DEGREE PROGRAM OPTIONS

UQ's research higher degree (RHD) programs provide world-class supervision from award-winning researchers. UQ offers two RHD programs – the Master of Philosophy and Doctor of Philosophy.

## Research higher degree programs

### Master of Philosophy (MPhil)

Offered in all research fields available at The University of Queensland

**Entry requirements** Bachelor degree with at least Honours II; other qualifications may be considered for entry. Refer to General Award Rules Part 4 – Postgraduate Research Awards (Master of Philosophy and Doctor of Philosophy) for formal entry requirements

**Duration** 1-2 years full-time (duration can vary)

**Mode** Internal or external with a minimum of 9 weeks full-time study on campus

**Location** St Lucia/Ipswich/Gatton/remote

### Program outline

The Master of Philosophy program provides research training that develops independent research skills including an ability to formulate a significant problem; mastery of appropriate conceptual and methodological frameworks; and the capacity for articulate and critical analysis. It is possible to transfer to a PhD program after one year full-time in an MPhil if work is considered of a suitable standard.

### Doctor of Philosophy (PhD)

Offered in all research fields available at The University of Queensland

**Entry requirements** Bachelor degree with at least Honours IIA; other qualifications may be considered for entry. Refer to General Award Rules Part 4 – Postgraduate Research Awards (Master of Philosophy and Doctor of Philosophy) for formal entry requirements

**Duration** 3-4 years full-time (duration can vary)

**Mode** Internal or external with a minimum of 9 weeks full-time study on campus over the total duration of candidature

**Location** St Lucia/Ipswich/Gatton/remote

### Program outline

The Doctor of Philosophy program develops independent research skills and an ability to relate a specific research topic to a broad framework of knowledge in a relevant discipline area. Candidates develop a capacity to formulate a significant problem; master appropriate conceptual

and methodological skills; and carry out an original program of research.

-----  
**International Recruitment Manager**  
[www.uq.edu.au/international/enquiry](http://www.uq.edu.au/international/enquiry)  
 Phone (outside Australia) +61 3 8676 7004  
 (within Australia – free call) 1800 671 980  
 -----

## Research supervision

**Research higher degree candidates at UQ are supervised by some of Australia's best and most experienced researchers.**

Each year the University presents Awards for Excellence in Research Higher Degree Supervision to encourage, recognise and reward sustained excellence in research higher degree supervision.

In 2007, these awards were presented to Associate Professor Richard Baldauf, from the School of Education, Professor David Craik, from the Institute for Molecular Bioscience and Dr Sarah Roberts-Thomson, from the School of Pharmacy.

Dr Baldauf is an applied linguist whose research interests centre around language, culture and education, particularly in the Pacific basin and as they relate to teaching English to speakers of other languages.

His students attest to his outstanding qualities as a scholar, an intellectual and a mentor. They greatly value his constructively critical approach and his enthusiasm for and active engagement with their research projects.

Dr Baldauf has successfully established the Thesis Family concept in which students are taught skills as referees and editors, giving them a broader insight into the research process, thereby benefiting their professional social development.

He has successfully supervised to completion 12 research students and has 10 students currently under supervision.

A senior lecturer in the School of Pharmacy, Dr Roberts-Thomson's research interests include transcription factors in cancer as well as nutrition and toxicology.

She has successfully supervised three students to completion and has nine currently under supervision.

Her students describe her as uniquely able to inspire, leading by example and providing a highly enjoyable research environment that is structured yet creative, flexible yet focused.

Her expectation that every candidate publish while under her supervision has resulted in her students having published 21 papers, many in top-tier journals, since 2000.

Australian Research Council Professorial Research Fellow and Group Leader for NMR Spectroscopy Research at the IMB, Professor Craik's research focuses on drug design and development.

Professor Craik's students are drawn to him by his reputation as an outstanding researcher. He leads by example and has created a highly productive team. He has successfully supervised to completion more than 20 PhD students and has 10 currently under supervision.

He mentors and guides them through their candidatures. The students particularly value his strong commitment and dedication to maintaining weekly, face-to-face meetings and the range of discussion opportunities he provides including one-on-one sessions, small group meetings and social gatherings such as a writing retreat

The writing retreat is an innovation in research supervision, where students can write in a newsroom style and atmosphere. To do this, Professor Craik takes them to UQ's Moreton Bay Research Station on Stradbroke Island.

## UQ reSEARCHers

UQ reSEARCHers is an online database for industry and business, the academic community, research students and the wider community. Future research higher degree candidates start their search for a supervisor here.

-----  
**UQ reSEARCHers**  
[www.uq.edu.au/uqresearchers](http://www.uq.edu.au/uqresearchers)  
 -----

# UQ GRADUATE SCHOOL

The UQ Graduate School provides a range of services to help research higher degree candidates achieve academic excellence and job readiness.

## UQ Graduate School

The UQ Graduate School promotes graduate study and fosters intellectual and professional academic growth.

The UQ Graduate School administers the Master of Philosophy (MPhil) and Doctor of Philosophy (PhD) programs; awards scholarships for research higher degrees; and oversees the submission and examination of theses. It develops policy and guidelines relating to supervision, research infrastructure and monitoring of research candidature progress.

The Graduate School enhances the graduate student experience by increasing educational and employment outcomes and promoting high standards of supervision. It also coordinates skills development programs and course components to prepare graduate students for successful careers.

The Graduate School has also initiated research travel grants; dedicated Library study facilities; academic conference support; and advisory training programs. To ensure that candidates, their supervisors, and schools sustain regular, quality contact the Graduate School provides over 350 office spaces to research higher degree candidates in addition to existing school postgraduate accommodation.

The School coordinates training workshops in information-retrieval, publishing, research methods, oral presentation, thesis-writing, intellectual property and preparing for future employment.

-----  
**UQ Graduate School**  
[www.uq.edu.au/grad-school](http://www.uq.edu.au/grad-school)  
 Email [candidature@research.uq.edu.au](mailto:candidature@research.uq.edu.au)  
 Phone +61 7 3365 7932  
 Fax +61 7 3365 4455  
 -----

## Extending and Enhancing research higher degrees

The UQ Graduate School provides additional funding schemes to help research higher degree candidates enhance their skills and realise their full academic potential.

## UQ Graduate School Research Travel Grants (GSRTG)

GSRTG provide travel funding for UQ research higher degree candidates to access resources in Australia or overseas that accelerate progress and enhance the quality of their research. GSRTG funding of up to AUD\$5000 gives them access to equipment, expertise or archives not readily available at UQ.



Dean of the UQ Graduate School,  
Professor Alan Lawson

## The Postgraduate Academic Conference Scheme (PACS)

PACS provides up to AUD\$1500 to UQ research higher degree candidates to organise their own research conferences.

(From left) PhD candidate in the School of Geography, Planning and Architecture Kelly Greenop, PhD candidate in the Australian Institute for Bioengineering and Nanotechnology Richard Mills and PhD candidate in the School of Integrative Biology Louise Shuey at the Eleanor Schonell Bridge which links UQ to Brisbane's southern suburbs



# RESEARCH HIGHER DEGREE SUPPORT

The UQ Graduate School's model for Harnessing Support for Research Students' Learning has been recognised with an Australian Award for University Teaching for best practice.



The Biological Sciences Library at UQ St Lucia

## RHD support

The UQ Graduate School coordinates professional development for RHD candidates through a range of skills training and support. Many skills are provided year-round by the UQ Library, Student Services or through the Teaching, Education and Development Institute.

## Research Student Virtual Portfolio



The UQ Graduate School is implementing the award-winning Research Student Virtual Portfolio (RSVP) across UQ for the benefit of our RHD cohort. The tool assists RHD candidates and their supervisors in documenting skills acquisition and graduate attributes as their candidature progresses.

**Research Student Virtual Portfolio**  
[www.uq.edu.au/grad-school/rsvp](http://www.uq.edu.au/grad-school/rsvp)

## UQ Library

The prestigious UQ Library provides one of the largest digital and print research collections in Australia.

## Researchers and Postgraduate Information Discovery



Researchers and Postgraduates Information Discovery (RAPID) ([www.library.uq.edu.au/training/rapid.html](http://www.library.uq.edu.au/training/rapid.html)) is a flexibly delivered information skills course developed by the UQ Library for postgraduates and researchers at UQ.

Candidates work through the course using any or all of the following options:

- > face-to-face in a training room with a librarian facilitator;
- > online;
- > in print mode using the learning guides; or
- > a combination of these methods.

## Student Services

Student Services provide an integrated professional service in the areas of careers and employment, learning assistance, personal counselling, disability support, student financial assistance and international student support.

A dedicated team of experienced International Student Advisors provide orientation to RHD candidates who may arrive at any time during the year.

## Negotiating for authorship

Authorship on publications and authorship order are of increasing importance for research careers and the success of collaborations. The UQ Graduate School is investing in the extension of an authorship model that finds the best order, avoids conflict and promotes long-term collaborations.

We seek to enhance scientific best practice and increase researcher accountability through a multi-criterion decision making approach that enables rational, project-specific accounts of all factors that lead to publication. This is of particular use for multidisciplinary work and for teams with different experiences and at different stages of their careers.

## UQ Tutors

RHD candidates often have the opportunity to be employed as tutors. The UQ Tutors website ([www.uq.edu.au/tutors](http://www.uq.edu.au/tutors)) includes information on becoming a tutor, getting started, working as a tutor, learning environments, policies and guidelines, school information and enhancing practice.

**UQ Graduate School support**  
[www.uq.edu.au/grad-school/support](http://www.uq.edu.au/grad-school/support)

# RESEARCH COMMERCIALISATION

UQ is the leading Australian university for the commercialisation of research.

## Commercialisation

Traditionally universities do two things – teaching and research. At UQ we do three: teaching, research and research commercialisation.

UQ has more staff dedicated to research commercialisation than any other Australian university and ranks first for licence income, value of equity holdings, invention disclosures, new Australian patents and active start-up companies.

### UQ's commercialisation companies

The highest concentration of Cooperative Research Centres (CRCs) and CRC funding of any Australian university confirms the depth of UQ's industry links and provides significant opportunities for collaboration and commercialisation to our RHD candidates. Our research commercialisation entities UniQuest, IMBcom and JKTech are recognised leaders and exemplars of best practice.

### Commercialisation Workshops

Our Commercialisation Workshops have no additional charge and are tailored to the needs of RHD candidates interested in applying their innovations and expertise

in the community. They offer an intensive grounding in the basics of commercialisation and intellectual property protection with speakers drawn from industry, the investment community, UQ, and UniQuest. Participants receive informative and practical insights into the commercial environment from researchers who have successfully commercialised their research.

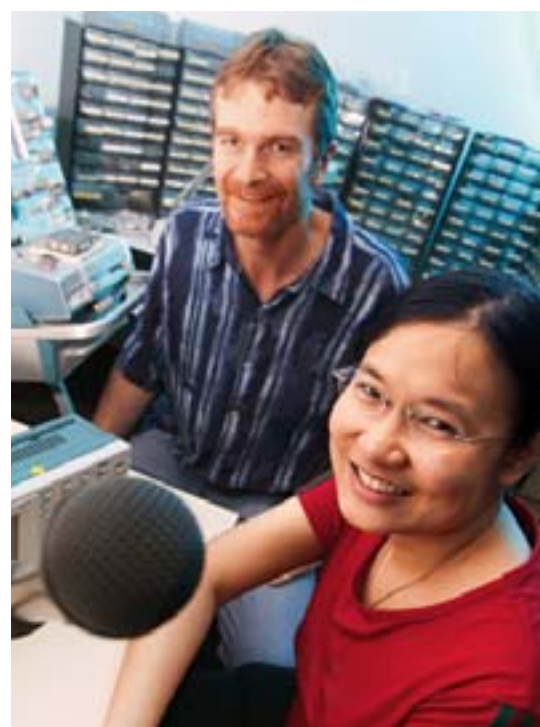
- Topics covered include:
- > why commercialise?
  - > safeguarding research outcomes (and still publish)
  - > accessing research funding from industry and government grants
  - > taking research to the market, with options from consulting to strategic industry partnerships to start-up companies, and
  - > career alternatives.

**UniQuest**  
[www.uniquest.com.au](http://www.uniquest.com.au)

**IMBcom**  
[www.imbcom.com.au](http://www.imbcom.com.au)

**JKTech**  
[www.jktech.com.au](http://www.jktech.com.au)

**UQ Graduate School commercialisation**  
[www.uq.edu.au/grad-school/commercialisation](http://www.uq.edu.au/grad-school/commercialisation)



Trailblazer commercialisation competition winner PhD student Wai Yie Leong with her supervisor Dr John Homer

Dr Madeleine Schultz, Dr Elizabeth Coulson and Dr Nyoman Kurniawan won UniQuest's Trailblazer competition, which aims to find the products of tomorrow. The researchers developed a pioneering concept for visually monitoring disease progression and the effectiveness of therapeutics via magnetic resonance imaging.



# RESEARCH STRENGTHS

UQ recognises the pursuit of excellence in both research and research training as being central to its mission. The lists below identify UQ's research strengths. Research higher degrees (MPhil/PhD) can be taken in these and other areas at UQ.

## UQ's research strengths

### Australian and Postcolonial Studies

- > Australian Social and Cultural History
- > Australian Politics and Government
- > Australian and Postcolonial Literature and Drama
- > Australian Linguistics
- > Aboriginal Studies

### Cognition, Performance and Human Interaction

- > Human Factors
- > Social Psychology
- > Cognitive Neuroscience and Clinical Neuropsychology
- > Communication
- > Ageing
- > Ergonomics

### Cultural, Historical and Media Studies

- > Cultural Theory
- > Television and Film Studies
- > European Cultural History
- > Histories of Religion
- > Asian Identities
- > New Media Cultures
- > Critical Literacy Studies

### Governance and Citizenship

- > International Relations
- > Economic and Legal Studies of Institutions
- > Dispute Resolution
- > Corporate Governance
- > Governance and Policy
- > International and Social Development

### Institutional and Organisational Change

- > Organisational Behaviour and Change Management
- > Industrial Relations
- > International Relations
- > Strategy, Marketing, Services, Tourism
- > Service Quality
- > Innovation Diffusion and Infusion

### Social and Economic Disadvantage

- > Disability and Special Education
- > Social Policy
- > Indigenous Health
- > Gender and Sexuality
- > Prejudice and Discrimination
- > Urban and Regional Housing and Sustainability
- > Rural and Remote Health Care

### Aetiology and Management of Disease

- > Cardiovascular Biology and Disease
- > Diabetes (Human and Animal)
- > Cancer
- > Renal Disease
- > Muscular-skeletal Disease, Injury and Rehabilitation
- > Mental Health
- > Tropical Health
- > Injury and Rehabilitation
- > Infectious Diseases
- > Intervention Trials

### Population Health and Health Promotion

- > Physical Activity
- > Population Health
- > Health Systems Organisation and Policy
- > Health Education and Promotion
- > International Health
- > Quality Use of Health Care

### Biotechnology

- > Drug Discovery and Delivery
- > Tissue Engineering
- > Stem Cell Biology
- > Biomaterials
- > Genetic Engineering
- > Microbial Pathogenicity

### Cellular and Molecular Bioscience

- > Structural Biology
- > Cell Biology
- > Developmental Biology
- > Biological Chemistry
- > Computational Biology and Bioinformatics
- > Tissue Inflammation
- > Immunology
- > Genomics
- > Proteomics
- > Human and Animal Genetics
- > Cell Based Therapies
- > Molecular Plant Sciences

### Complex and Intelligent Systems

- > Information and Communications Technology
- > Advanced Computation, Modelling and Visualisation
- > Computational Science
- > Economic and Financial Modelling
- > Smart Sensor Technology
- > New Technologies and Society
- > Computational Solid Earth Geophysics
- > Mathematical Modelling and Analysis
- > Information Systems
- > Smart Machines

### Environment, Biodiversity and Sustainability

- > Environmental Management and Rehabilitation
- > Water Management
- > Social and Behavioural Aspects of Sustainability
- > Environmental Toxicology
- > Sustainable Mining and Minerals
- > Ecology
- > Resource and Ecological Economics
- > Plant Protection
- > Sustainable Resource Management
- > Evolution
- > Environmental Microbiology
- > Microbial Biodiversity
- > Wildlife and Exotic Species

### Food and Health

- > Nutrition
- > Food Safety
- > Food Processing
- > Food Technology
- > Toxicology

### Hypersonics

- > Flight and Laboratory Testing
- > Super-orbital Facility Development
- > Re-entry Test and Capsule Design
- > Rarefied Gas Dynamics and Computational Fluid Dynamics
- > Optics

### Imaging Science and Technology

- > Microscopy and Microanalysis
- > Magnetic Resonance Imaging
- > Biomedical Engineering

### Marine Studies

- > Coral Reef Biology
- > Marine Parasitology
- > Aquaculture
- > Marine Botany
- > Maritime Law
- > Marine Biotechnology
- > Coastal Zone Management
- > Marine Ecology
- > Marine Mammals

### Materials and Nanotechnology

- > Surface Chemistry
- > Bio-Engineering
- > Materials and Product Design
- > Pyrometallurgy

### Neuroscience

- > Vision, Touch and Hearing
- > Brain Research



Dr Clare Underwood (left) and Dr Tim Silk in the Queensland Brain Institute

- > Autonomic Nervous System
- > Pain and Pain Management
- > Developmental Neurobiology
- > Movement Control, Coordination and Rehabilitation

#### **Quantum and Photon Science and Technology**

- > Photon and Laser Science
- > Quantum Computing and Information Processing
- > Quantum Optics
- > Artificial Photosynthesis

#### **Sustainable Agricultural Production Systems**

- > Plant and Animal Improvement
- > Soil and Land Resources
- > Agribusiness

### **Emerging research strengths**

UQ's emerging strengths tend to be narrower and more focused, generally reflecting areas of strategic importance being developed within the University. In time, some of these research programs will enhance institutional strengths; others will develop critical mass and become acknowledged internationally.

#### **Arts, Humanities and Social Sciences**

- > Drama
- > Environmental Studies in the Humanities
- > Ethics and Value Theory
- > History of Sexuality
- > Early Modern Studies
- > Educational Research: Policy, Pedagogy and Reform
- > Youth Families and Social Institutions
- > Evidence Based Health and Social Practice
- > New Technologies: Pedagogy, Cognition and Social Impact
- > Peace and Conflict Resolution and Mediation
- > Diversity: Changing Rights, Institutions and Culture

#### **Health and Medical Sciences**

- > Tissue Inflammation and Repair
- > Quality Use of Health Care
- > Online Health and Education
- > Health Policy
- > Animal Health and Welfare
- > Waste Management
- > Clinical Psychology and Clinical Neuropsychology

#### **Science and Technology**

- > Evolutionary and Molecular Ecology
- > Fresh Water Management
- > Bioinformatics and Molecular Modelling

- > Spatial and Quantitative Ecology
- > Biopharmacology and Pharmacokinetics
- > Molecular Modelling
- > Development Diseases and Mouse Models of Disease
- > Biobusiness
- > Proteomics and Intermolecular Interactions
- > E-commerce and Cyber-Law
- > International Trade, Finance and Economic Development in Asia-Pacific
- > Business Communications
- > Isotope Analysis, Trace Element Chemistry and Geochronology
- > Statistical Modelling
- > Earthquake Science
- > Combinatorial Algorithms and Algorithm Design
- > Mathematical Physics
- > Architecture

---

#### **School postgraduate contacts**

[www.uq.edu.au/grad-school/pgcontacts](http://www.uq.edu.au/grad-school/pgcontacts)

#### **Research centres**

[www.uq.edu.au/research](http://www.uq.edu.au/research)

#### **UQ reSEARCHers**

[www.uq.edu.au/uqresearchers](http://www.uq.edu.au/uqresearchers)

#### **International Recruitment Manager**

[www.uq.edu.au/international/enquiry](http://www.uq.edu.au/international/enquiry)  
Phone (outside Australia) +61 3 8676 7004  
(within Australia – free call) 1800 671 980

---

# KEY UQ RESEARCH INSTITUTES

UQ supports a comprehensive research profile and invests strategically in selected areas where it has developed critical mass and internationally recognised strengths.

## Australian Institute for Bioengineering and Nanotechnology (AIBN)

The AIBN is Australia's first fully-integrated research institute to take a multidisciplinary approach to understanding and exploiting nanostructures, the genetic basis of cell activity, and opportunities at the interface between bioengineering and nanotechnology.

### AIBN research

With internationally recognised researchers in bioengineering and nanotechnology, AIBN merges the skills of engineers, chemists, biologists and computational scientists to focus research and development efforts, leading to new products and devices for improving human health and quality of life.

The AIBN has one of the most significant representations of scientists and engineers working in the areas of bioengineering and nanotechnology in Australia. This unique

combination of scientists and engineers undertakes research in four main areas:

- > nanotechnology for energy and the environment
- > cell and tissue engineering
- > systems biotechnology, and
- > biomolecular nanotechnology and devices.

Research being undertaken includes the development of artificial human organs and tissues, biomedical delivery, biodevices, tissue regeneration and cell therapies, clean energy, value-added manufacturing and biopolymers.

The AIBN provides outstanding opportunities for the next generation of scientists looking to undertake research training.

### Careers at AIBN

The AIBN is dedicated to providing unparalleled training opportunities for research higher degree students. AIBN researchers have collaborative links with laboratories all over the world, providing extensive opportunities to enrich the training process.

Financial support is available and may include scholarship (living allowance), conference attendance and research costs.

**Australian Institute for Biotechnology and Nanotechnology (AIBN)**  
www.aibn.uq.edu.au

## Diamantina Institute for Cancer, Immunology and Metabolic Medicine

Diamantina brings together clinicians, clinical researchers and scientists working on some of today's most important health problems, including cancer, vaccines against infectious disease and diabetes.

The Institute's goal is to develop a better understanding of the molecular and cellular basis of disease. It aims to translate that understanding into practical outcomes for patients, through design and testing of new prevention strategies and treatments.

The Diamantina Institute's achievements include a world first vaccine to prevent cervical cancer, which was recently licensed for use worldwide, and new treatments for rheumatoid arthritis, diabetes and the metabolic syndrome.

Australian Institute for Bioengineering and Nanotechnology, UQ St Lucia



Research programs are conducted in areas as diverse as immunogenetics, cancer cell biology and the regulation of lipid storage, while the Institute retains a common focus on the translation of basic science into therapy.

Diamantina has successfully incubated three start-up companies with interests in vaccine technology, the treatment of obesity and the management of autoimmune disease.

### Collaborations

Through extensive collaborations with scientists within UQ's schools, centres and other institutes, its affiliated hospitals, and with colleagues worldwide, the Diamantina Institute maintains its scientific and clinical research at the cutting-edge internationally, while also delivering practical outcomes for patients.

**Diamantina Institute for Cancer, Immunology and Metabolic Medicine**  
www.di.uq.edu.au

## Institute for Molecular Bioscience (IMB)

The IMB is recognised internationally as a globally competitive centre for molecular bioscience research.

The IMB is located with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and other research agencies at the Queensland Bioscience Precinct at UQ St Lucia. It is the largest integrated bioscience research complex in Australia.

The highly integrated research environment at the IMB facilitates an exchange of ideas across a broad spectrum of molecular biological sciences.

This enables a holistic approach to understanding the bases of human and mammalian growth and development at the molecular, cellular and organ levels.

The IMB is involved in a wide range of research ranging from genomics to the development of new drugs and diagnostics.

Its researchers are particularly interested in:

- > genetic programming of mammalian development and variation
- > mapping the structure, growth and dynamics of mammalian tissues and cells



Institute for Molecular Bioscience at the Queensland Bioscience Precinct, UQ St Lucia



From front: Alise Poh, Dr Ian Vella and Lea Worton in the Diamantina Institute for Cancer, Immunology and Metabolic Medicine

- > developing new medicines and technologies, and
- > issues in genetic and cellular medicine and technologies.

IMB researchers contribute to national research programs and have ongoing collaborations with groups around the world.

### Research centres

- > Australian Research Council Special Research Centre for Functional and Applied Genomics
- > Australian Genome Research Facility
- > Australian Phenomics Facility
- > Australian Research Council Biotechnology Centres of Excellence in Stem Cells and Tissue Repair, Biotechnology and Development and Centre in Bioinformatics, and

- > Cooperative Research Centres (CRCs) for Chronic and Inflammatory Diseases and Australasian Invasive Animals.

The Institute also houses the Advanced Cryo-Electron Microscopy Laboratory, a major node of the Nanostructural Analysis Network Organisation Major National Research Facility and the Australian Cancer Research Foundation's Dynamic Imaging Facility for Cancer Biology.

### Commercialisation

The IMB's research outcomes are protected and commercialised by the University-owned technology transfer corporation IMBcom Pty Ltd.

**Institute for Molecular Bioscience (IMB)**  
www.imb.uq.edu.au

# KEY UQ RESEARCH INSTITUTES



Queensland Brain Institute, UQ St Lucia

## Institute for Social Science Research (ISSR)

UQ's goal of addressing important societal problems with world-class research was significantly advanced through the opening of the ISSR in 2007.

The Institute highlights the burgeoning research strengths in areas of contemporary social relevance within UQ's Faculty of Social and Behavioural Sciences.

The ISSR encourages collaboration among social scientists across UQ and provides a strong profile to end users in both government and the private sector. It brings together social scientists in an environment where new insights in social science knowledge and application can be readily achieved.

Many of the current challenges facing society require strong social science research that is evidence-based, problem-oriented and interdisciplinary. These challenges include delivering effective services, safeguarding the nation, building a sustainable economy and responding to climate change.

A defining characteristic of the ISSR is its strong quantitative and analytical focus, which is complemented by expertise at the cutting-edge of qualitative methods.

Researchers in the ISSR have access to methodological expertise in both quantitative and qualitative social science and the infrastructure to conduct sophisticated research using a range of techniques.

### Research centres

The ISSR encompasses the Australasian Centre on Ageing, the Australian Centre for Peace and Conflict Studies, the UQ Social Research Centre and the UQ Boilerhouse Community Engagement Centre.

**Institute for Social Science Research (ISSR)**  
[www.uq.edu.au/issr](http://www.uq.edu.au/issr)

## Queensland Brain Institute (QBI)

The QBI brings together leaders in the fields of brain physiology, cell and molecular neuroscience, systems physiology, and behavioural and cognitive neuroscience.

The key goal of the QBI is to explore the cellular and molecular mechanisms underlying the ability of the adult brain to adapt to change by generating new nerve cells and forming new functional connections. This involves investigating normal processes such as learning and memory, as well as the brain's response to ageing, injury and disease.

The QBI is located in a new, \$55 million building, the first of its kind dedicated to brain research in Queensland.

The QBI is dedicated to providing world-class training opportunities for research higher degree students.

Neuroscience is entering an era of accelerated discovery driven by the application of new molecular, genetic and imaging technologies, which will provide a deeper understanding of the regulation and function of the nervous system. The discoveries made by QBI researchers are then used to develop unique strategies to repair and regenerate the brain following trauma or neurological diseases such as Alzheimer's disease and stroke. QBI findings are also providing insights into improving brain function, both during ageing and in the presence of mental illnesses such as schizophrenia and depression.



Australasian Centre on Ageing Director Professor Helen Bartlett. The Centre is located in the ISSR.

QBI researchers are particularly interested in the following areas of research:

- > neural cell degeneration, migration, plasticity and stem cells
- > computational neuroscience, and
- > cortical development.

QBI staff also encourage applications from students with interests in cross-disciplinary approaches, for example in computational modelling, psychology, and clinical or industry applications.

QBI research groups contribute to large national research programs and have ongoing collaborations with other research groups around the world.

### Research centres

The Institute has significant associations with the following: the Vision, Touch and Hearing Research Centre, the Advanced Computational Modelling Centre, the Centre for Magnetic Resonance, and the Queensland Centre for Mental Health Research.

---

#### Queensland Brain Institute (QBI)

[www.qbi.uq.edu.au](http://www.qbi.uq.edu.au)

---

### Sustainable Minerals Institute (SMI)

**More and more, Australia's mining industry has to deal with the concept of responsible growth – growth that makes economic sense and is environmentally and socially responsible.**

As a result, the industry is increasingly turning to UQ's SMI for new and unique ways of addressing these responsibilities.

SMI's research is driven by an agenda to identify the significant challenges facing the minerals industry, and to capitalise on the breadth of the research capacity within its centres by fostering obvious, and not-so-obvious synergies. The challenges include:

- > the management of water
- > mine closure
- > social issues, and
- > the meaning and application of sustainable development principles.

Areas of research that would be of interest to postgraduate students include:

- > social and behavioural research associated with communities and their interaction with major industries

- > use of mathematical modelling for technical, environmental, spatial and mineral economics problems
- > examination of the principles of sustainable development, and
- > application of risk analysis methodology in safety, health and environmental applications.

### Research centres

The SMI encompasses the Julius Kruttschnitt Mineral Research Centre, the Centre for Mined Land Rehabilitation, the WH Bryan Mining Geology Research Centre, the Minerals Industry Research Centre, the Centre for Social Responsibility in Mining and the Centre for Water in the Minerals Industry. It also embraces School divisions which are active in minerals industry research.

In addition, SMI has strong links with the Cooperative Research Centres (CRC) for Sustainable Resource Processing, Coal in Sustainable Development, and the AJ Parker CRC for Hydrometallurgy.

---

#### Sustainable Minerals Institute (SMI)

[www.smi.uq.edu.au](http://www.smi.uq.edu.au)

---

Sustainable Minerals Institute, UQ St Lucia



Queensland Brain Institute researchers Dr Tim Silk (left) and Dr Rod Rietze



# STUDENT RESEARCH

A brief sampling of some recent research by UQ students.

## AGRICULTURE, ANIMALS, FOOD & ENVIRONMENT

### Puppies go behind bars



**Two UQ students are investigating whether puppies in prison can help reform inmates and improve the working lives of prison staff.**

MPhil student Claire Eddie and PhD student Georgia Sakrzewski are following the progress

of four pups delivered into the care of prisoners and staff at the low-security Darling Downs Correctional Centre in southern Queensland.

Eight prisoners are raising and training the puppies in basic obedience for 16 months to become assistance dogs.

Assistance dogs are companions for people with disabilities and are often able to help open doors and retrieve dropped objects.

Corrective Services introduced Pups In Prison in 2006 in partnership with Assistance Dogs Australia to help inmates develop patience, compassion, self-regulation, communication skills and cooperation.

Claire said they were interested in changes to the prisoners' psychological wellbeing, criminal attitudes, loneliness and parenting skills and also the job satisfaction and workplace morale of prison staff.

## BUSINESS, ECONOMICS, TOURISM & LAW

### Not what you know but who you know



**A UQ PhD candidate has found that the cliché – it's not what you know; it's who you know – might be true after all.**

Sam MacAulay said the relationships people developed at work were often critical to their effectiveness.

"Most people would probably agree that the average organisational chart doesn't begin to capture the relationships employees develop to get things done," he said.

"Instead, effective workers develop their own 'knowledge networks' as they build relationships with other staff in the course of their work."

"These knowledge networks have been shown to be critical in the innovation process."

Sam will work with the world's leading producer of wind power systems to discover how knowledge networks enable the company to keep innovating.

After negotiations led by Sam's Danish supervisor Professor Lars Håkanson, the Danish wind turbine manufacturer Vestas has opened its doors to the business student. Sam is completing his PhD under the guidance of Professor Håkanson and UQ Business School's John Steen and Tim Kastelle.

## ENGINEERING, ARCHITECTURE & PLANNING

### The art of making the city



**As Australia's capital cities continue to expand both upwards and outwards, the ways that buildings make the urban landscape is emerging as an important question.**

PhD candidate Susan Holden is

examining architecture's relationship to the city, through a study of the history of city-making and the different ways both architecture and the city have been conceptualised as works of art.

"My experience in practice and my awareness of the profession since I completed my undergraduate degree have highlighted the way architects are increasingly asked to engage in multi-disciplinary teams with complex and changing urban contexts, and address broad questions concerning the city through involvement in master planning, landscape planning, and infrastructure planning," she said.

"It has made me curious about architecture's relationship to the city. I want to understand at a deeper level, how this relationship has been conceptualised by the discipline in the past and what architecture can offer specifically to this question in the present."

## HEALTH

### Software shows promise for speech disorders



**Children with speech, language and reading disorders may soon be able to be treated remotely by using a UQ-designed telerehabilitation system.**

The PC-based system, allows speech pathologists to assess

and treat children living in rural and remote areas via the Internet.

The system, consisting of webcams, headsets, a robotic arm, touchscreen and computer, was designed by the Telerehabilitation Research Unit in UQ's School of Health and Rehabilitation Sciences.

UQ Speech pathology PhD student Monique Waite said preliminary results using the system were encouraging.

Monique said a pilot study found ratings of speech and oral motor functions made over the Internet were the same as face-to-face ratings more than 90 percent of the time.

She said ratings of language skills of 12 children online matched face-to-face ratings with almost 100 percent agreement.

Telehealth software such as this system is increasingly being used to help children in rural and remote areas access speech pathology services.

## HUMANITIES, SOCIAL SCIENCE, EDUCATION & ARTS

### Troubled teens no match for real role models



**Suspension and sports are not a "cure all" for boys with behavioural problems, according to research by a recent UQ PhD graduate.**

Dr Julia Tilling said good mentors and time in supportive school environments would help students.

Dr Tilling, who graduated in 2007, said schools should be given more resources to help students with behavioural problems.

Alternative programs such as boot camps and outdoor education often invited students with behavioural problems to continue with bad behaviour.

Some of these program instructors who were "macho football types" needed to teach broader psychological and sociological interventions.

"It's also not just about students receiving rehabilitation intervention and consequences for negative behaviours but also about positive reinforcement," Dr Tilling said.

Dr Tilling spent a year analysing how boys who had been suspended from school formed their identities.

She found that most of these boys valued gangs, drugs, big cars, "chicks", violence and aggressive behaviour to gain a sense of power, but did not value formal education.

## SCIENCE & INFORMATION TECHNOLOGY

### Jumping into the scholarship pond



**UQ PhD candidate John Abramyan from the US is helping to prevent the spread of cane toads thanks to an Australian Government scholarship.**

Cane toads were introduced to Australia in 1935, and have had a detrimental impact on

sections of Australian wildlife.

In 2006, John received a Cooperative Research Centre (CRC) Scholarship from the Invasive Animals CRC to undertake his PhD at the University's Institute for Molecular Bioscience (IMB).

Working in the research laboratory of Professor Peter Koopman, John is researching strategies designed to limit the number of female cane toads and therefore dramatically halt the growth and further spread of the cane toad population, and reduce the threat they pose.

The "daughterless" strategy being studied is similar to that currently planned to control carp in the Murray-Darling basin which is one of the most significant agricultural areas in Australia. It is non-toxic and poses no risk beyond the target species.

"In this project, we will carry out the genetic and ecological studies required for successful transfer of this technology to cane toads," he said.