

Medicine and surgery



MACQUARIE
University
SYDNEY · AUSTRALIA



Macquarie is setting new national benchmarks in medical research through MQ Health, the first university-led integrated health campus in Australia. MQ Health integrates Macquarie University Hospital and a variety of specialist clinics, the University's Faculty of Medicine and Health Sciences, Macquarie University Clinical Associates and clinical components of the Faculty of Human Sciences.

MQ Health brings together world-class clinical care, teaching and research to provide an integrated approach to holistic patient treatment, discovery and continuous learning. This model is used by many of the world's leading academic institutions and hospitals, and it ensures that medical research breakthroughs directly improve patients' lives. This partnership also provides our higher degree research candidates with access to a research environment that is unmatched in Australia.

We conduct world-leading, cross-disciplinary research into cancer, neuroscience, clinical sciences, cardiology, hearing, mental health and sustainable health systems. Macquarie is the lead institution of a \$14 million NHMRC-funded research program to study the molecular determinants of risk, progression and treatment response in melanoma. Our flagship motor neurone disease (MND) research program includes a lead role in tissue banking as part of the world's largest genetic study – Project MinE. In related work, a research team led by Associate Professor Ian Blair has also received a \$6.37 million NHMRC grant for exploring the common genetics between MND and frontotemporal dementia.

The Australian Institute of Health Innovation (AIHI) conducts multidisciplinary research into health sector practices, organisation and management. Its research strengths include healthcare policy, governance and leadership; the development of intelligent search systems and health informatics to support evidence-based healthcare; and the rigorous multi-method evaluation of health systems and safety practices.

AIHI is widely recognised for its impact. Recent recognition includes a \$10.75 million NHMRC Partnership Centre for Health System Sustainability – the centre is jointly governed and funded by NHMRC, Bupa Health Foundation, NSW Health, Telstra and the University of Notre Dame Australia.

Additionally, AIHI's Associate Professor Farah Magrabi has received a Sax Institute Research Action Award for her new e-health risks classification system, now the international standard, and founding director of AIHI Professor Jeffrey Braithwaite has been conferred an honorary fellowship of the Royal Australasian College of Medical Administrators. Also, Dr Annie Lau – one of Australia's leading digital health researchers – has been honoured in the inaugural Women in Research Citation Awards, and Professor Andrew Georgiou and Magrabi have been awarded the International Medical Informatics Association (IMIA) Working Group of the Year Award for the third year running.

In the most recent Excellence in Research for Australia evaluation, our neurosciences, clinical sciences, and oncology and carcinogenesis research each received a rating of performance well above world standard, while our cardiovascular medicine and haematology research received a rating of performance above world standard'

As a higher degree research candidate at Macquarie, you'll have the opportunity to work alongside experts in academia, industry, and clinical care and health systems evaluation, providing you with an unrivalled research experience, as well as the opportunity to drive innovation and improve the lives of people around the world.



AREAS OF SPECIALISATION

- Biomechanics
- Blood flow and arterial pulsatility
- Cardiorespiratory neuroscience
- Cardiorespiratory physiology
- Cardiovascular neuroscience
- Cellular signalling
- Clinical ethics
- E-health and health informatics
- Genetics
- Health systems and patient safety
- Infection and immunity
- Medical image processing, radiochemistry, medical physics
- Molecular neuroscience
- Motor neurone disease
- Musculoskeletal conditions
- Neurological rehabilitation
- Neurology and neurological diseases
- Neurosurgery
- Orthopaedics
- Pain and pain management
- Pharmacology
- Physiotherapy
- Vascular surgery
- Visual science and ophthalmology



FACILITIES AND EQUIPMENT

- Anatomy labs with facilities for orthopaedics and radiology
- Australian Hearing Hub
- Australia's first gamma knife
- da Vinci Surgical Systems
- Macquarie Medical Imaging: Magnetic resonance imaging (MRI), computed tomography (CT) and positron emission tomography (PET), among other medical imaging techniques
- Macquarie University Hospital and clinics
- Molecular and cell biology research laboratories
- Motion analysis lab (3D and overground force plates)
- Quantitative sensory testing facility
- Surgical Skills Centre and Simulation Skills Centre
- Virtual reality suite



RESEARCH HUBS

- Australian Institute of Health Innovation, which incorporates the:
 - Centre for Healthcare Resilience and Implementation Science
 - Centre for Health Informatics
 - Centre for Health Systems and Safety Research
- Macquarie University Centre for Motor Neuron Disease Research
- Centre for Physical Health



OUR RESEARCH PRIORITIES

We pursue excellence in a broad range of research areas. Our five interdisciplinary strategic research priorities – Healthy People, Resilient Societies, Prosperous Economies, Secure Planet and Innovative Technologies – respond to globally significant challenges and opportunities to improve the lives of millions. Together, these research priorities provide a focal point for research, with discoveries made under these priorities translating into real improvements in the lives of local, national and global communities.

JOINTLY SUPERVISED PHD PROGRAMS

Macquarie actively encourages cotutelles and joint degrees – shared supervision arrangements with universities whose research activity strongly aligns with ours. Under each model, you are enrolled at two universities with a principal supervisor at each and may be eligible for additional scholarship support.

mq.edu.au/cotutelle-and-joint-phd