

Chemical and biomolecular sciences



MACQUARIE
University
SYDNEY · AUSTRALIA



From research into anti-cancer drugs and photosynthetic bacteria to the rapid detection of disease pathogens and examining the effects on brain chemistry of chronic caffeine and sucrose consumption, researchers in chemical and biomolecular sciences at Macquarie are uniquely positioned to help shape the complex issues that define the future of humanity.

Macquarie researchers pioneered the study of proteomics and Macquarie is home to the world's first dedicated proteomics facility, the Australian Proteome Analysis Facility. We are also home to the ARC Training Centre for Molecular Technology in the Food Industry in partnership with Grain Growers Australia, the NSW Department of Primary Industries, Gratuk Technologies and Agritechology.

Macquarie is driving major advances in basic and commercial research in analytical spectrometry, glycochemistry, quantitative proteomics, and separation science and instrumental methods. Our researchers are also pioneering new methods in laser spectroscopy and organic catalysis.

Macquarie enjoys enviable rankings – in the 2015 Excellence in Research for Australia evaluation, our chemical and biomolecular sciences research received ratings of well above world standard in plant biology, and agricultural and veterinary sciences, above world standard in analytical chemistry and microbiology, and at world standard in biochemistry and cell biology.

Several of our researchers sit on the editorial boards of international journals, including *Current Opinion in Molecular Therapeutics*, *Frontiers in Plant Science*, *Journal of Nanotechnology*, *Journal of Proteome Research*, *Journal of Proteomics* and *Molecules*.

As a higher degree research candidate at Macquarie, you'll have the opportunity to engage in research alongside some of the best academics and researchers in not only Australia but also the world, and you'll have access to outstanding facilities.



AREAS OF SPECIALISATION

- Analytical chemistry
- Atmospheric chemistry
- Biochemistry
- Biomedical proteomics
- Biotechnology
- Chemical biology
- Environmental proteomics
- Glycomics
- Medicinal chemistry
- Metagenomics
- Structural genomics
- Synthetic biology



FACILITIES

- A wide range of mass spectrometers, including quadrupole-TOF, triple quadrupole, triple quadrupole-TOF, quadrupole-Trap, linear ion trap, orbitrap and MALDI-TOF/TOF instruments
- 400 and 600 MHz NMR spectrometers – the latter equipped with a cryoProbe
- Two Leica SP2 fluorescence microscopes, fluorescence spectrometers and plate readers



RESEARCH HUBS

- Australian Proteome Analysis Facility
- Australian Research Council Training Centre for Molecular Technology in the Food Industry
- Biomolecular Frontiers Research Centre
- Macquarie node of the ARC Centre of Excellence for Nanoscale BioPhotonics
- Macquarie University Centre for Analytical Biotechnology

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