



Mathematical sciences and statistics

From research into the security of e-passport systems and the design of randomised clinical trials to arithmetic properties of musical rhythms and risk management in electricity markets, Macquarie's mathematical sciences and statistics researchers are uniquely positioned to help shape the complex issues that define the future of humanity.

Mathematical sciences and statistics research at Macquarie is undertaken in pure and applied mathematics – with strengths in applied mathematics, category theory, harmonic analysis and number theory; and statistics – with strengths in biostatistics, epidemiology and medical statistics, image processing, stochastic finance and time series analysis.

Our researchers enjoy high levels of international co-authorship and regularly publish their research in prestigious journals such as *Communications on Pure and Applied Mathematics*, *IEEE Transactions on Image Processing*, *IEEE Transactions on Signal Processing*, *Journal of the American Mathematical Society*, *Journal of the American Statistical Association* and *Statistics in Medicine*.

We also undertake significant levels of collaborative research, with partners including national medical research institutes such as the NHMRC Clinical Trials Centre and George Institute for Global Health, and Defence Science and Technology Organisation, Australian Signals Directorate and IBM.

Our researchers are widely recognised, both in Australia and internationally, as leaders in their fields. In the most recent Excellence in Research for Australia evaluation, our research in the discipline of mathematical sciences received a rating of 'performance above world standard', as did our research in the sub-discipline of computation theory and mathematics. Additionally, our research in the sub-discipline of pure mathematics received a rating of 'performance well above world standard'.

As a higher degree research candidate at Macquarie, you will have the opportunity to undertake research alongside some of the best academics and researchers not just in Australia but the world.

mq.edu.au/research/mathematical-sciences



MACQUARIE
University
SYDNEY · AUSTRALIA



AREAS OF SPECIALISATION



MATHEMATICAL SCIENCES

- Analysis
- Applied mathematics
- Category theory
- Number theory

STATISTICS

- Biostatistics
- Computational statistics
- Financial modelling
- Signal and image processing



FACILITIES

- Macquarie runs a small supercomputer based on NVIDIA Tesla boards



RESEARCH HUB

- Centre of Australian Category Theory

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



FIND OUT MORE

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