Macquarie's biological sciences research is world leading. In the Excellence in Research for Australia (ERA) 2012 evaluation our biological sciences research received a rating of ‘performance above world standard’.

Macquarie is also the number 1 institution in Australia in environmental sciences and ecology research (ESI, 2013). This places the University alongside Woods Hole Oceanographic Institute (USA) and University of Chicago (USA) in terms of the international impact of our research.

Our research strengths are concentrated in the areas of conservation genetics, ecology, evolutionary biology, microbiology, palaeobiology, plant biology and zoology, and a significant theme is international networking that builds world-scale research collaborations. We are home to Australian Laureate Fellows, Future Fellows and International Research Fellows, as well as Young Tall Poppy science award winners and a NSW Scientist of the Year award winner.

As an HDR candidate you will be part of a large and vibrant community of research students and will have the opportunity to conduct research alongside some of the world’s best scholars whose research continually pushes the boundaries of knowledge.
Highlights

• In the Excellence in Research for Australia (ERA) 2012 evaluation the sub-discipline of evolutionary biology received a rating of ‘performance well above world standard’, and the sub-disciplines of ecology, microbiology, and plant biology received a rating of ‘performance above world standard’

• Our researchers enjoy high visibility in prominent journals such as Nature, Proceedings of the National Academy of Sciences (USA) and Science. Additionally, research into antibiotic resistance, coral reef dynamics, early animal evolution, honey bee colony collapse, native rice, polymorphic Gouldian finches, sexual cannibalism, social lizards, spider web design, and tool use by fish enjoys wide media coverage

Support

We give HDR candidates strong academic and administrative support. This includes:

• Commencement and completion programs
• Conference travel schemes
• Discipline-specific research training units, including workshops in research communication, presentation skills, academic writing skills, thesis planning and poster preparation
• Genes to Geoscience Research Enrichment Program and Outlook Conference
• HDR conference where students present research results and receive detailed feedback from staff and peers
• Office space, internet and library access
• Progress and direction are closely monitored by experienced supervisors and a postgraduate committee
• Research budget for project costs
• Top-up scholarships from industry

Research leaders

Macquarie is home to many internationally renowned researchers, including:

Dr Andrew Allen is a high profile theoretical ecologist whose research interests lie at the interface of organismal physiology, and community and ecosystem ecology. Allen uses mathematical models to describe a range of biological phenomena including broad-scale biodiversity gradients, rates of DNA evolution, and nutrient cycles in organisms and ecosystems. His current research focuses on developing and testing new biodiversity models that relate contemporary biodiversity to speciation-extinction dynamics in the fossil record.

Dr Linda Beaumont researches biological responses to climate change, including phenological and species distribution shifts, and conservation implications. Her research includes identifying climate refugia, developing rigorous methods of incorporating climate scenarios into impacts assessments, and assessing how inclusion of genetic and physiological information into niche-based models can inform the adaptive capacity of species to climate change.

Dr Darrell Kemp has broad research interests focused on the evolution and ecology of sexual reproduction. His research blends quantitative genetics, developmental biology, physiology and behavioural ecology to address questions related to the evolution of mating strategies, contest behaviour, mate choice and sexual signalling. A key research theme is to understand how and why animal colour patterns evolve, particularly conspicuously bright mating signals.