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As an HDR candidate you will be part of a large and vibrant community of over 100 research students, and you will have the opportunity to conduct research alongside some of the world’s best scholars whose research continually pushes the boundaries of knowledge.

AREAS OF SPECIALISATION
• Animal behaviour
• Behavioural ecology
• Biodiversity and conservation
• Climate change biology
• Comparative cognition
• Conservation genetics
• Ecology and evolution
• Environmental and molecular microbiology
• Human biology
• Human genetics
• Immunobiology
• Marine biology
• Mathematical modelling of biological systems
• Neurobiology
• Palaeobiology and palaeoecology
• Plant and animal physiology
• Synthetic biology

FACILITIES
• Acid leaching facility and fossil preparation laboratory
• Biological Sciences Museum
• Fauna park, bee/fly house, animal enclosures, freshwater ponds
• Field vehicles and boats
• Microscopy unit
• On-campus marine science sea water facility
• Plant growth facility, herbarium and glasshouse
• Sydney Institute of Marine Science

RESEARCH HUBS
• Climate Futures
• Concentration of Research Excellence in Animal Behaviour
• Concentration of Research Excellence in Ecology and Evolution
• Genes to Geoscience

PHOTO: RON OLDFIELD

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Highlights

• In the most recent Excellence in Research for Australia (ERA) 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 of the United States of America 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

Research leaders

Macquarie is home to many internationally renowned researchers, including:

Professor Michelle Leishman is a plant ecologist with broad research interests in plant functional traits, plant responses to climate change and plant conservation biology. Her research integrates experimental studies in the field and glasshouse, large scale comparative analysis of plant traits, and bioclimatic modelling and spatial analysis. Her applied research focuses on extinction threats to plant species and ecological communities, with strong research collaborations with scientists from the Royal Botanic Gardens and the New South Wales Office of Environment and Heritage.

Associate Professor Martin Whiting’s research is broadly focused on behavioural and evolutionary ecology. His lab studies animal communication, in particular the design and information content of animal signals, particularly colour signals and their role in fitness. A second theme in his lab is cognition and brain size evolution in lizards and toads and the link between cognition and social behaviour. The team is also using the family-dwelling, social Australian Egernia-Liopholis clade as a model system for uncovering the mechanisms that might have driven the early evolution of monogamy and sociality.

Dr Rob Lanfear’s research focuses on understanding how and why species’ genomes change over time. His work bridges spatial and temporal scales: from mutations that occur within individuals over a few decades, to the long-term evolution of entire clades over millions of years. Two key research themes are to understand the causes and consequences of variation in long-term rates of molecular evolution, and to map and date the accumulation of somatic mutations within individual trees.

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.