MRes 2023

APPLIED BIOSCIENCES

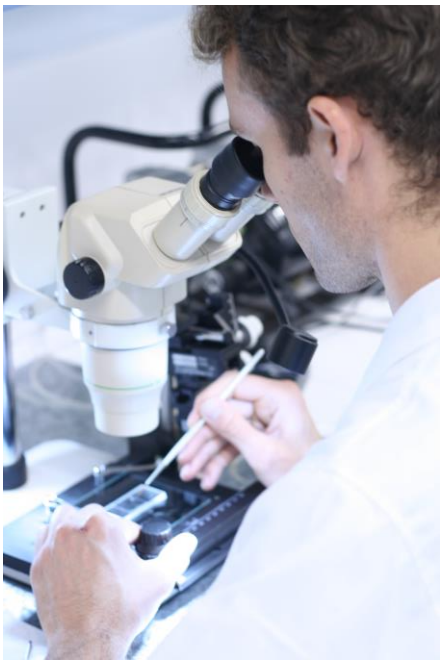
The Master of Research (MRes) combines advanced disciplinary coursework and structured research training, to provide graduates with greater recognition for their academic progress, enhanced employment opportunities and pathways to further study in Australia and overseas. Applied BioSciences offers some compelling MRes pathways to a PhD at Macquarie University.

APPLIED BIOSCIENCES

Applied BioSciences is a joint enterprise of Macquarie University, CSIRO, NSW Department of Primary Industries, and the Australian Institute of Marine Science.

Developing solutions to major global and regional challenges requires interdisciplinary research that builds on a foundation of quality basic research that is then 'translated' into outcomes and impact.

Applied BioSciences conducts translational research that draws on and applies diverse disciplines including entomology, microbiology, molecular biology, synthetic biology, genetics, chemical ecology, and marine science.



Preparing mosquito embryos for DNA microinjection

PROGRAM STRUCTURE

Although the MRes is a two-year program, Applied Biosciences exclusively focuses on the second year of the program which is research intensive and culminates in a written thesis.

Applied BioSciences second year MRes.

Otherwise, students will complete their first year in another department (e.g.Molecular Sciences) prior to transferring to Applied BioSciences for their second year.

The second year of the MRes will be made up of structured research preparation and training, where candidates will:

- Extend their knowledge of research innovations in their discipline;
- Survey the current literature related to their particular research interest;
- Engage with the latest research methods in their field;
- Receive training in project management and plan a major research project, and
- Complete a significant individual research project of their own design, with support of a thesis supervisor.

Prepping insect physiology experiments

Program Structure: (Jan-Oct) or (Jul-Apr)
Five Core Activities
1) Thesis (50 pages) based on a research project
2) Research Frontiers 2
3) Literature Review
4) Research Planning
5) Research Methods

The Faculty members Applied BioSciences have the required expertise and experience to assist students in taking their research projects from initial definition to successful completion. Students in Appliend Biosciences will also have unique opportunities to build professional networks with industry and government partners. The research skills developed by students through the MRes program are extremely valuable for the generation of research outcomes in a future PhD program.

Examining bacterial colonies on agar plate

Year 2 Example Projects

- Behavioural biology of fruit flies
- Engineering speciation events in mosquitoes
- Prevalence and Predictors of Polyandry and Paternity
- Expression of microbial bioremediation enzymes in animals
- Physiology and genetics of Queensland fruit fly fitness
- Development of male only production system for sterile insect technique
- Composition and function of fruit fly pheromones
- Using base-editors to sex bias invasive rodent populations
- The biochemistry of remating inhibition in Queensland fruit flies
- Threshold dependent gene drives for invasive fish population control
- Microencapsulation of pest control agents using biopolymers

ELIGIBILITY

A postgraduate degree from a recognised institution and a GPA of at least 4.38 overall (7 point scale), and at least 5.25 at 400-level.

Candidates who have a complete Bachelor Honours degree or relevant Masters by coursework should consult with the Department as to different pathways for degree admission.

APPLICATION

Applications are submitted online:

mq.edu.au/research/phd-and-research-degrees/how-to-apply

APPLICATION DEADLINE for Session 2 2023 PROGRAM

- ❑ **Domestic: TBC (candidature and scholarship)**
- ❑ **International: 3 March 2023**

STIPENDS AND SCHOLARSHIPS

Information on Domestic and International MRes Scholarships can be found at: mq.edu.au/research/phd-and-research-degrees/scholarships

FURTHER INFORMATION

mq.edu.au/research/phd-and-research-degrees

Contact us directly via email: AppliedBioSci@mq.edu.au

Rearing Queensland fruit flies

FIND OUT MORE
mq.edu.au/research/phd-and-research-degrees

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