

BPhil/MRes 2016

EARTH AND PLANETARY SCIENCES

The Bachelor of Philosophy/Master of Research (BPhil/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 overseas. The two-year full-time BPhil/MRes is the main pathway to a PhD at Macquarie University.

DEPARTMENT OF EARTH AND PLANETARY SCIENCES

The Department of Earth and Planetary Sciences (EPS) has an exceptional intellectual climate with active research groups in geology, geophysics, geodynamics, geochemistry (inorganic and organic), geobiology, environmental science and experimental petrology/mineral physics. EPS is one of the most successful departments at Macquarie University, receiving the highest ranking (5 out of 5) in ERA (Excellence in Research for Australia). It is ranked 48th in the world for Earth and Marine Science by QS World rankings. The department hosts the Australian Research Council, Centre of Excellence in Core to Crust Fluid Systems (CCFS), the Macquarie University Planetary Research Centre and the Macquarie University Centre for Marine Research. The department has:

- Exceptional analytical facilities
- Numerical computing support
- A large portfolio of external funding to support research



Field studies in New Zealand (Photo: Heather Handley)

PROGRAM STRUCTURE

The MRes program consists of 32 credit points in Year 1 and 32 credit points in Year 2. Students have access to a range of units from a variety of subject areas across the University. This allows the construction of a program relevant to your specific interests, subject to academic approval.

Domestic students may study part-time but most international students must study full time.

YEAR 1

Program Structure: Year 1 Units (8 units required)

MRES700 Research Communications Unit (compulsory)

GEOS700 Research Frontiers Unit (compulsory)

Advanced Disciplinary Units (choose six units)

GEOS701	Geophysics: Special Topics 1
GEOS702	Geophysics: Special Topics 2
GEOS704	Readings in Geoscience
GEOS705	Advanced Field Techniques 1
GEOS706	Advanced Field Techniques 2
GEOS707	From Microstructures to Plate Tectonics
GEOS708	Scientific Visualisation and Scripting
GEOS710	The Organic Geochemistry of Sedimentary Rocks, Oils and Gases
GEOS711	Ages and Processes: Advanced Geochemistry
GEOS776	Advanced Geochemical Applications and Techniques
GEOS791	Research Topic in Earth and Planetary Sciences
GEOS792	Experimental Methods Under Deep Earth Conditions

Note: Students have the flexibility to undertake units from across all disciplines, subject to academic approval.

Year 1 Example Unit Contents

GEOS701: This unit will focus on special topics in geophysics. Topics can range from shallow geophysical, to deep geophysical to global geophysics. Topics will be chosen to give students the basic tools of analysis that are required to undertake more advanced research.

GEOS705: This unit aims to integrate stratigraphic, sedimentological, structural, igneous and tectonic field studies in a varied terrain. It provides extended experience in geological mapping, particularly in photogeological techniques and study of local to regional relations.

GEOS707: This course aims to give the student an in-depth knowledge of how to document, analyse and interpret microstructures in thin section with special emphasis on deformation and metamorphic microstructures.

GEOS708: This unit is a hands-on tutorial-style unit, where students will work with some of the most sophisticated scientific visualization programs developed, and learn how to manipulate, process, and display large and disparate geoscience datasets.

GEOS710: This unit provides the foundations for analysing the chemical composition of sedimentary rocks and fluids such as oils and gases, and especially the organic constituents. This unit will showcase organic geochemical techniques and will be strongly practically based.

GEOS776: This unit provides hands-on training and operation of state-of-the-art instrumentation used in inorganic geochemical analysis to determine major element, trace element and isotopic composition of rocks and minerals. The unit comprises lectures, group instrument instruction and individual projects. The project includes planning the analytical strategy, data collection, data presentation and interpretation.

GEOS792: This unit will provide students with knowledge of the foundations of high-pressure experimental petrology. You will learn the relative advantages and disadvantages of various high-pressure apparatus, methods of data collection and analysis and how to interpret these data in terms of structures and processes inside the Earth.

YEAR 2

Year 2 of the MRes will be made up of structured research training where candidates will:

- Extend their knowledge of research innovations in their discipline;
- Survey the current literature related to their particular research interest;
- Study 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 supervisory team.

Program Structure: Year 2 (Jan-Oct)

Five Core Activities

- 1) Thesis (20,000 words) based on a research project
- 2) Research Frontiers 2
- 3) Literature Review
- 4) Research Planning
- 5) Research Methods

ELIGIBILITY

An undergraduate or postgraduate degree from a recognised institution and a GPA of at least 2.5 on a 4 point scale overall, and at least 3.0 at 300-level.

Candidates who have a complete Bachelor Honours degree or Masters by coursework may receive up to 32 credit points towards the program, based on the content of their previous study, making it possible to start the program from Year 2.

STIPENDS AND SCHOLARSHIPS 2016

DOMESTIC STUDENTS

Year 1: All full time domestic candidates entering the BPhil/MRes program in Year 1 receive a scholarship stipend in Session 1 of \$4,000, paid as a single payment after 26 March 2016. To receive a scholarship stipend payment of \$4,000 in Session 2, candidates require a weighted average of 65 or above at the end of Session 1. The second payment is made after 26 August 2016.

Year 2: For 2016 BPhil Candidates who will progress to Year 2 in 2017, eligibility for Year 2 stipend will be determined through a competitive ranking, based on the final weighted average of all Year 1 units.

New commencing direct entry MRes Year 2 2016:

Applicants will go through a competitive ranking process in December. Their applications will be benchmarked against the progressing cohorts with regard to the scholarship cut-off weighted mark. Top ranked candidates will be recommended for the Year 2 stipend.

INTERNATIONAL STUDENTS

There are no general Macquarie University funded scholarships for international applicants applying for entry into Year 1 or Year 2 MRes.

Scholarship opportunities currently available to international students applying for admission into MRes Years 1 and 2 are limited to citizens of specific countries, as overseas governments offer the scholarships to their nationals.

APPLICATION

Applications are submitted online:

http://www.hdr.mq.edu.au/information_about/how_to_apply

☐ **Deadline Domestic: 30th Sept 2015**

☐ **Deadline International: 31st August 2015**

All correspondence, application documents and assessment outcomes are stored electronically and HDR applicants will be able to apply and track the progress of their application online.

If prospective students need help with the online application they are advised to visit our online application FAQs or watch a video on how to apply at

<https://wiki.mq.edu.au/display/hdrappassessment/Applicants>

FURTHER INFORMATION

<https://eps.mq.edu.au/higher-degree-research/>

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