MASTER OF GEOSCIENCE

Overview:

The Master of Geoscience provides an advanced degree that prepares students to work in private industry and government agencies. The graduate program also gives professional geoscientists an opportunity to build upon and improve their professional/job skills. The Department of Earth and Planetary Sciences at Macquarie University (http://eps.mq.edu.au/) has an international reputation for its multidisciplinary research and study programs, with expertise in geology, geochemistry, geophysics and geodynamics. These fields are critical to understanding many environmental and industry-related problems. Unique to this degree is its multidisciplinary and “big-picture” problem-solving approach, necessary to tackle 21st century problems. Our teaching is also supported by the world-class ARC research centre Core to Crust Fluid Systems and various other high profile research groups. Although there are no formal specialisations within the masters program, students must complete 16 credit points of the degree by a research project supervised by one of the academic staff in the Department (please refer to http://eps.mq.edu.au/staff.htm) who has an area of expertise appropriate to your research interests. All students will be assigned an academic advisor within the Department of Earth and Planetary Sciences who will assist the student, before beginning the masters, in planning a course of study appropriate to his/her area of interest.

Requirements:

- Australian Bachelor degree or recognised equivalent in relevant field (Geology, Geophysics, Physical Geography, Mineralogy, Engineering Geology, Environmental Science)
- Minimum GPA of 2.50 (out of 4.0)
- Minimum English Language Proficiency: IELTS or IELTS equivalent of 6.5 overall, with minimum 6.0 in each band

Minimum Requirements for level 9 Masters Degree:

GEOS891 Research Project (16cp)

This unit will be the capstone unit, where students will undertake a research project in their final session of study. Students will undertake an independent research project, which may be applied or basic or strategic research. Students will learn research methodologies and implement the knowledge learnt in the other units.

PLO:

1. Knowledge and Understanding:

   By the end of this program it is anticipated you should be able to:

   1.1 Create detailed maps and logs where rocks are reasonably well exposed, understand how aerial photos can be used to help create accurate maps, and determine the geological history and changing palaeoenvironments of an area.

   1.2 Identify key systems and their interplay within the Earth.

   1.3 Construct a critical evaluation of current scientific knowledge in geosciences.

   1.4 Understand how to collect, prepare, describe and interpret geoscientific data and information.
1.5 Comprehend and articulate the essential links between Earth Sciences and other science disciplines in order to deepen your comprehension of Geosciences.

1.6 Identify and suggest explanations for geoscientific problems related to environmental and industry-related activities.

1.7 Understand and apply recent techniques and conceptual developments in the selected area of professional practice.

1.8 Understand and apply research principles and methods applicable to the selected area of practice.

2. Skills and Capabilities

By the end of this program it is anticipated you should be able to:

2.1 Collect and analyse quantitative geoscientific data (e.g. geochemical, geophysical, geological, environmental, etc) to solve a range of geological problems.

2.2 Infer depositional environments from field observations, and effectively use several field instruments.

2.3 Formulate hypotheses and use appropriate techniques to test and evaluate these through experimentation and observation.

2.4 Research and extract relevant geoscientific information in order to describe and communicate a coherent understanding of Earth system processes.

2.5 Co-ordinate and integrate multiple strands of knowledge in order to solve geoscientific problems through a combination of any or all of literature research, field and laboratory studies and theoretical techniques.

2.7 Summarise and effectively communicate scientific understanding. This will include presentation of information, articulating and evaluating arguments and justifying conclusions via a range of mechanisms (oral, written and visual) to a diversity of audiences for a variety of purposes.

2.8 Co-ordinate and participate of taskforces actions to explain/solve/remediate problems related to specific environmental and industry-related activities.

Graduate Destinations and Employability:

The Master of Geoscience provides an advanced degree that prepares students to work in private industry and government agencies. The graduate program also gives professional geoscientists an opportunity to build upon and improve their professional/job skills.

Teaching arrangements:

This award is utilising units that are already taught and so does not add any extra teaching workload to academic staff. This award is essentially replacing an award that is already in place.

This award was previously the Master of Science - Geoscience Specilisation. However, all the specialisations in the Master of Science are to be removed for 2015. This proposal is simply the renaming of the geoscience specialisation to the Master of Geoscience and so will not add to any extra resources for the Department and the University.