

R05 RE Master of Science - Earth Sciences

Year and Campus:	2009
Coordinator:	A/Prof Kevin Walsh
Overview:	<p>The Master of Science (Earth Sciences program) includes collaboration between Earth Sciences/Geosciences departments from at least two other institutions (originally Monash and La Trobe universities, under our Victorian Institute of Earth and Planetary Sciences or 'VIEPS' legal agreement and partnership) expanding in the last decade to involve cooperation between several institutions (including Melbourne). Cooperation at this national level provides students from all participating institutions with the opportunity to access the best and broadest array of advanced coursework in the Earth Sciences discipline.</p> <p>Students must complete 200 points comprising:</p> <ul style="list-style-type: none"> # 50 - 62.5 points of the discipline module; # 12.5 - 25 points of the Professional Tools module; and # 125 points of the Research Project module. <p>Two streams are offered in the Master of Science (Earth Sciences program): the Atmospheric Science stream and the Geology stream.</p> <p>Atmospheric Science stream</p> <p>Core discipline subjects (50 points)</p> <p>Students must take all of the following:</p> <ul style="list-style-type: none"> # 625-662 Mesoscale Atmospheric Dynamics (not offered in 2009); # 625-661 Climate Analysis and Modelling; # 625-660 Atmosphere-Ocean Interaction and Climate; # 625-656 Current Topics in Atmospheric Science (not offered in 2009). <p>Elective discipline subjects (12.5 points)</p> <p>Students must choose a further 12.5 points from Master of Science (Earth Sciences program: Geology stream) subjects, Professional Tools subjects or 300-level Science subjects. One elective from another stream within the Master of Science (http://handbook.unimelb.edu.au/view/2009/R05 (http://handbook.unimelb.edu.au/view/2009/R05)) or the Master of Environment (http://handbook.unimelb.edu.au/view/2009/441-MS) (http://handbook.unimelb.edu.au/view/2009/441-MS) may also be approved on a case-by-case basis.</p> <p>Professional tools (12.5 -25 points)</p> <p>Students must take at least one Professional Tools subjects from the following list:</p> <p>Business Tools</p> <ul style="list-style-type: none"> • 600-614 Business Tools: Money, People and Projects. <p>Science Tools</p> <ul style="list-style-type: none"> • Critical Analysis in Science (available semester 2, 2010); • eScience (available semester 2, 2010); • 600-617 Systems Modelling and Simulation; • 600-618 Ethics and Responsibility in Science; • 600-615 Thinking and Reasoning with Data. <p>Communication Tools</p> <ul style="list-style-type: none"> • 600-616 Science in Context, • 600-619 Science and Communication. <p>Research</p> <p>Research Project (125 points)</p>

Students will gain research experience in Earth Sciences by completing an original research project in their main field of interest. The amount of work completed in this project should be comparable to that undertaken for a published journal article, and students will be encouraged to submit their work for publication. Although the assessment weighting for the literature review may be viewed as low given the word limit, particularly when compared with the final thesis, the former is largely a 'reading topic', from which the student is expected to place their research project into a broader context. In contrast, and as noted above, the final thesis is expected to be a far more rigorous scientific document, showing an appropriate level of insight and scientific interpretation of results, and be of publishable quality. The assessment for the Research Project is therefore:

- # a project-related oral presentation (5%);
- # a literature review (5%, with a word limit of 4,000 words);
- # a thesis (90%, with a word limit of 25,000 words).

Students enrolled in the Master of Science (Earth Sciences program) are required to complete a 125 point Research Project. Subject to supervisor approval, students may enrol in a combination of Research Project subjects as indicated below over their two years of full-time study or over their four years of part-time study, to ensure they have completed a total of 125 points by the end of their course.

- # 625-671 Research Project - 12.5 points
- # 625-672 Research Project - 25.0 points
- # 625-673 Research Project - 37.5 points
- # 625-675 Research Project - 50.0 points

Geology stream

Core discipline subjects (50 points)

Students must take four of the following, two of which are required to correspond to their thesis topic:

- 625-653 Geoscience in the Field;
- 625-654 Hydrogeology and the Environment;
- 625-652 Geophysics;
- 625-659 Deposit Models and Mineral Exploration;
- 625-624 The Geology of Ore Deposits;
- 625-622 Digital Geoscience;
- 625-651 Geochemistry and Geochronology;
- 625-626 Surface Processes and Geodynamics;
- 625-650 Energy (not offered in 2009);
- 625-655 Palaeontology and Biogeochemistry (not offered in 2009);
- 625-627 Structural Geology and Geodynamics;
- 625-657 Current Topics in Geology A,
- 625-658 Current Topics in Geology B.

Elective discipline subjects (12.5 points)

Students must also take a further 12.5 points of approved coursework subjects, selected either from the above subjects, professional tools subjects, or from 300-level geology subjects.

Electives from another stream within the Master of Science (<http://handbook.unimelb.edu.au/view/2009/R05> (<http://handbook.unimelb.edu.au/view/2009/R05>)) or the Master of Environment (<http://handbook.unimelb.edu.au/view/2009/441-MS>) (<http://handbook.unimelb.edu.au/view/2009/441-MS>) may also be approved on a case-by-case basis.

Professional tools (12.5 -25 points)

Students must take at least one Professional Tools subjects from the following list:

Business Tools

- 600-614 Business Tools I: People, Money and Projects.

Science Tools

- Critical Analysis in Science (not offered in 2009);
- eScience (not offered in 2009),
- 600-617 Systems Modelling and Simulation,
- 600-618 Ethics and Responsibility in Science,
- 600-615 Thinking and Reasoning with Data.

Communication Tools

- 600-616 Science in Context;
- 600-619 Science and Communication,

Research

Research Project (125 points)

Students will gain research experience in Earth Sciences by completing an original research project in their main field of interest. The amount of work completed in this project should be comparable to that undertaken for a published journal article, and students will be encouraged to submit their work for publication. Although the assessment weighting for the literature review may be viewed as low given the word limit, particularly when compared with the final thesis, the former is largely a 'reading topic', from which the student is expected to place their research project into a broader context. In contrast, and as noted above, the final thesis is expected to be a far more rigorous scientific document, showing an appropriate level of insight and scientific interpretation of results, and be of publishable quality. The assessment for the Research Project is therefore:

- # a project-related oral presentation (5%);
- # a literature review (5%, with a word limit of 4,000 words);
- # a thesis (90%, with a word limit of 25,000 words).

Students enrolled in the Master of Science (Earth Sciences program) are required to complete a 125 point Research Project. Subject to supervisor approval, students may enrol in a combination of Research Project subjects as indicated below over their two years of full-time study or over their four years of part-time study, to ensure they have completed a total of 125 points by the end of their course.

- # 625-671 Research Project - 12.5 points
- # 625-672 Research Project - 25.0 points
- # 625-673 Research Project - 37.5 points
- # 625-675 Research Project - 50.0 points

Objectives:

This course aims to:

- # equip students with discipline-specific knowledge and expertise appropriate for post-graduate research in the Earth Sciences field;
- # exercise critical judgement;
- # undertake rigorous and independent thinking;
- # adopt a problem-solving approach to new and unfamiliar tasks.

Subject Options:

Subject	Study Period Commencement:	Credit Points:
625-675 Research Project	Summer, Semester 1, Semester 2	50.00
625-660 Atmosphere Ocean Interaction and Climate	Semester 1	12.50
625-624 The Geology of Ore Deposits	Semester 1	12.50

	625-626 Surface Processes and Geodynamics	Semester 1	12.50
	625-627 Structural Geology and Geodynamics	Semester 1	12.50
	625-654 Hydrogeology and the Environment	Semester 1	12.50
	625-653 Geoscience in the Field	Semester 1	12.50
	625-652 Geophysics	Semester 1	12.50
	625-651 Geochemistry and Geochronology	Semester 1	12.50
	625-659 Deposit Models & Mineral Exploration	Semester 1	12.50
	625-657 Current Topics in Geology A	Semester 1	12.50
	625-658 Current Topics in Geology B	Semester 2	12.50
	625-622 Digital Geoscience	Semester 1	12.50
	625-661 Climate Analysis and Modelling	Semester 1	12.50
	625-671 Research Project	Summer, Semester 1, Semester 2	12.50
	625-672 Research Project	Summer, Semester 1, Semester 2	25.00
	625-673 Research Project	Summer, Semester 1, Semester 2	37.50
Links to further information:	http://graduate.science.unimelb.edu.au/programs/msc/earthsci		
Related Course(s):	Master of Science		