

R05 PE Master of Science (Environmental Science)

Year and Campus:	2009
Overview:	<p>The Master of Science (Environmental Science) applies scientific principles to understanding and managing the natural and built environment. Students learn about global changes that are occurring in the environment, the science that underpins those changes, how continuing and novel changes can be detected, and how these changes can be managed. Students will also acquire the analytical techniques employed in environmental science.</p> <p>This professional entry program offers students the opportunity to undertake core science studies as well as professional tools modules, which provide high-level training in areas of business, communications and science applications.</p> <p>Topics covered in this program include:</p> <ul style="list-style-type: none"> # Restoration and remediation # Environmental modelling # Environmental assessment and management # Measuring the physical, chemical and biological properties of land, sea and sky # Environmental sampling # Global environmental change <p>Course structure (all subjects are 12.5 points each, total points: 200)</p> <p>Discipline Core (62.5 points)</p> <p>Students must take:</p> <ul style="list-style-type: none"> o 600-654 Global Environmental Change, plus o 600-303 Environmental Risk Assessment*, plus o 600-653 Environmental Monitoring and Audit, plus o Environmental Modelling (This subject will not be available until semester 1, 2010), and o Graduate Seminar: Environmental Science (This subject will not be available until semester 2, 2010) <p>Discipline Elective (37.5 points)</p> <p>Students must take 3 of the following subjects:</p> <ul style="list-style-type: none"> o 625-634 Climate Affairs o eScience ** (this subject will not be available until semester 2, 2010) o 600-617 Systems Modelling and Simulation o 606-608 Restoration Ecology (offered every second year from 2009) o 121-532 Environmental Impact Assessment o 451-610 Fundamentals of GIS o 207-412 Environments of Urban Landscapes o 207-501 Management of Plant and Animal Invasion o 250-650 Wildlife Management o 207-511 Soil Science and Management o 610-680 Environmental Chemistry*** (may not be available beyond 2009) o 610-360 Analytical and Environmental Chemistry*** o 606-305 Vegetation Management and Conservation*** o 606-607 Flora of Victoria*** (summer semester) o 654-608 Conservation Biology*** o 625-608 Hydrogeology**** (summer semester) <p>* Exemption from this subject will be granted if the student has completed this as part of their undergraduate degree.</p> <p>** These subjects can be taken either as an elective discipline subject or as an elective professional tool (but cannot be counted as both).</p>

*** This subject is only available as an elective to a student if an equivalent subject has not been completed in the student's undergraduate degree.

**** Availability of subject may depend on timetabling constraints.

Project Module (12.5 points)

o 600-611 Industry Project (this subject will not be available until semester 2, 2010)

Professional Tools Module (87.5 points)

Professional Tools Core (75 points)

Students must take:

2 Business Tools Units

o 600-614 Business Tools: Money, People and Projects, plus

o Business Tools: The Market Environment (this subject will not be available until semester 1, 2010) plus

2 Science Tools Units

o 600-615 Thinking and Reasoning with Data, plus

o 600-618 Ethics and Responsibility in Science, plus

2 Communication Tools Units

o 600-619 Science and Communication, plus

o 600-616 Science in Context

Professional Tools Elective (12.5 points)

Students must take 1 of the following *Science Tools* subjects:

o eScience (this subject will not be available until semester 2, 2010) and/or

o 600-617 Systems Modelling and Simulation¹ and/or

o Critical Analysis in Science (this subject will not be available until semester 2, 2010)

Objectives:

Course objectives include:

- # an appreciation for the role of modelling in environmental science;
- # an overview of the range of environmental models in use;
- # the skills required to model environmental systems and processes;
- # an introduction to the construction and mathematical analysis of environmental models;
- # a high level of ability to analyse and evaluate environmental models;
- # describe major current global environmental challenges facing scientists and policy-makers;
- # discuss the relevance of a range of scientific disciplines to environmental management including meteorology, ecology, toxicology, hydrology, geology and epidemiology;
- # analyse the role of various evidentiary approaches to supporting science-based arguments including empirical observation and analysis, modelling and use of expert opinion; and
- # judge the merit of scientific arguments made in documents related to environmental policy.

Subject Options:

Subject	Study Period Commencement:	Credit Points:
600-615 Thinking and Reasoning with Data	Semester 1	12.50
600-619 Science and Communication	Semester 1	12.50
600-654 Global Environmental Change	Semester 1	12.50
600-303 Environmental Risk Assessment	Semester 1	12.50
600-614 Business Tools:Money, People & Projects	Semester 2	12.50

	600-653 Environmental Monitoring and Audit	Semester 2	12.50
	600-616 Science in Context	Semester 2	12.50
	625-634 Climate Affairs	Semester 2	12.50
	600-617 Systems Modelling and Simulation	Semester 1	12.50
	606-608 Restoration Ecology	Not offered 2009	12.50
	121-532 Environmental Impact Assessment	Semester 1	12.50
	451-610 Fundamentals of GIS	Semester 1	12.50
	207-412 Environments of Urban Landscapes	Semester 1	12.50
	207-501 Management of Plant and Animal Invasions	Semester 2	12.50
	250-650 Wildlife Management	Semester 1	12.50
	610-680 Environmental Chemistry	Semester 2	12.50
	610-360 Analytical & Environmental Chemistry	Semester 2	12.50
	606-305 Vegetation Management and Conservation	Semester 2	12.50
	606-607 Flora of Victoria	Summer	12.50
	654-608 Conservation Biology	Semester 2	12.50
	625-608 Hydrogeology	Summer	12.50
	600-618 Ethics and Responsibility in Science	Semester 2	12.50
Links to further information:	http://graduate.science.unimelb.edu.au/		
Related Course(s):	Master of Science		