University of Pretoria Yearbook 2016

MSc Water Resource Management (Coursework) (03251035)

Duration of study	1 year
Total credits	180

Programme information

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

This programme is coordinated by the Department of Microbiology and Plant Pathology.

The purpose of this focus area is to train environmental graduates who specialised in careers in the sustainable management of water resources. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in water resource management in Southern Africa. This includes principles of quality management, water conservation, water demand management, water supply and sanitation technologies.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Admission requirements

Before application for admission to the MSc (Water Resource Management) degree programme candidates must be in possession of a four-year degree qualification BScHons or equivalent degree status which includes appropriate subjects in water management and/or water ecology. Final admission is subject to the approval of the Director of the Centre for Environmental Studies and the Head of the Department of Microbiology and Plant Pathology.

Additional requirements

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Other programme-specific information

At least one additional elective module must be selected in consultation with the Director of the Centre and the Head of the Department of Microbiology and Plant Pathology. Choice of electives will be based on the academic background and/or anticipated career of the candidate.

Promotion to next study year

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Pass with distinction

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Curriculum: Year 1

Minimum credits: 180

Core modules

Environmental paradigms 810 (ENV 810)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	5 discussion classes per week
Language of tuition	English
Academic organisation	Zoology and Entomology
Period of presentation	Semester 1

Module content

Environmental philosophy and ethics, environmental ecology, environment, society and development, environmental economics, environmental management, critical resources management: water utilisation, air quality control, land-use planning: soil characteristics, biodiversity planning, critical resource management: determinism vs co-evolutionary environmental frameworks, research methodology and practice.

Research project 891 (ENV 891)

Module credits	90.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Zoology and Entomology
Period of presentation	Year

Module content

The student needs to conduct a research project under the supervision of an academic member of staff associated with the Centre for Environmental Studies. This project needs to be of a sufficient quality to be publishable in the open scientific literature. The research report is examined as a manuscript for a suitable journal.

Water quality management 810 (EWM 810)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	20 discussion classes
Language of tuition	English
Academic organisation	Microbiology and Plant Path
Period of presentation	Semester 2

Module content
Severity of waterborne disease, accurate risk analysis, emergence of pathogens resistant to disinfection, the use of indicator organisms, toxicity risks, viral and protozoal contamination, water borne diseases surveillance, epidemiology of water borne diseases, water quality standards and monitoring, education.

Water conservation and demand management 821 (EWM 821)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	20 discussion classes
Language of tuition	English
Academic organisation	Microbiology and Plant Path
Period of presentation	Semester 2

Module content
Public access to information regarding water quality, water supply sustainability and public education, demand projections, water management efficiency systems approach to water management, watershed protection, drinking water treatment and distribution, wastewater collection and treatment, effects of deforestation and treatment, and complex water system developments, destruction of wetlands, effects of recreation, agriculture and aquaculture on eutrophication.

Water supply and sanitation 822 (EWM 822)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	20 discussion classes
Language of tuition	English
Academic organisation	Microbiology and Plant Path
Period of presentation	Semester 2

Module content
Low technology water treatment options, sanitary engineering, high technology options, water disinfection methods, selection of treatment regimes, stormwater management.

Environmental law 816 (ENV 816)

Module credits	15.00
Service modules	Faculty of Law
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 web-based period per week, 1 lecture per week
Language of tuition	English
Academic organisation	Zoology and Entomology

Period of presentation Semester 1 or Semester 2

Module content

Legislation for sustainable development within the framework of international agreements, the different acts affecting water quality and water use, the SEMAs within the NEMA framework, the NEMA EIA regulations, legislation pertaining to hazardous substances, interaction between mining development and NEMA, energy law, strategic environmental legislation, marine and coastal management.

Curriculum: Final year

Minimum credits: 180

Core modules

Environmental paradigms 810 (ENV 810)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	5 discussion classes per week
Language of tuition	English
Academic organisation	Zoology and Entomology
Period of presentation	Semester 1

Module content

Environmental philosophy and ethics, environmental ecology, environment, society and development, environmental economics, environmental management, critical resources management: water utilisation, air quality control, land-use planning: soil characteristics, biodiversity planning, critical resource management: determinism vs co-evolutionary environmental frameworks, research methodology and practice.

Research project 891 (ENV 891)

Module credits	90.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Zoology and Entomology
Period of presentation	Year

Module content

The student needs to conduct a research project under the supervision of an academic member of staff associated with the Centre for Environmental Studies. This project needs to be of a sufficient quality to be publishable in the open scientific literature. The research report is examined as a manuscript for a suitable journal.

Water quality management 810 (EWM 810)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	20 discussion classes
Language of tuition	English
Academic organisation	Microbiology and Plant Path
Period of presentation	Semester 2

Module content
Severity of waterborne disease, accurate risk analysis, emergence of pathogens resistant to disinfection, the use of indicator organisms, toxicity risks, viral and protozoal contamination, water borne diseases surveillance, epidemiology of water borne diseases, water quality standards and monitoring, education.

Water conservation and demand management 821 (EWM 821)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	20 discussion classes
Language of tuition	English
Academic organisation	Microbiology and Plant Path
Period of presentation	Semester 2

Module content
Public access to information regarding water quality, water supply sustainability and public education, demand projections, water management efficiency systems approach to water management, watershed protection, drinking water treatment and distribution, wastewater collection and treatment, effects of deforestation and treatment, and complex water system developments, destruction of wetlands, effects of recreation, agriculture and aquaculture on eutrophication.

Water supply and sanitation 822 (EWM 822)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	20 discussion classes
Language of tuition	English
Academic organisation	Microbiology and Plant Path
Period of presentation	Semester 2

Module content
Low technology water treatment options, sanitary engineering, high technology options, water disinfection methods, selection of treatment regimes, stormwater management.

Environmental law 816 (ENV 816)

Module credits	15.00
Service modules	Faculty of Law
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 web-based period per week, 1 lecture per week
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Module content

Legislation for sustainable development within the framework of international agreements, the different acts affecting water quality and water use, the SEMAs within the NEMA framework, the NEMA EIA regulations, legislation pertaining to hazardous substances, interaction between mining development and NEMA, energy law, strategic environmental legislation, marine and coastal management.

The information published here is subject to change and may be amended after the publication of this information. The General Regulations (G Regulations) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the General Rules section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.