

Universiteit van Pretoria Jaarboek 2018

MSc Omgewingsekologie (Gedoseer) (02250404)

Minimum duur van studie 2 jaar

Totale krediete 180

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

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.

Coordinated by the Department of Zoology and Entomology.

The purpose of this focus area is to train environmental graduates who specialised in careers in the ecology of the environment, including conservation planning, environmental management and air quality management. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in the management of the ecological consequences of human existence. This includes a thorough grounding in ecosystem structure, composition and function, ecosystem services, notions of ecosystem health, the management of declining and small populations, captive propagation, control of invasive species, species and community restoration, conservation education, local communities and conservation, as well as aspects of biogeography and macro-ecology, conservation planning and monitoring, the structure, composition and function of biological communities, population and community variability.

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.

Addisionele vereistes

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).

Ander programspesifieke inligting

One of the listed specialisation modules may be substituted with an elective module subject to the approval of the Director of the Centre. Choice of an elective is based on the academic background and/or anticipated career of the student but is expected to be relevant to either conservation biology or sustainable forestry management.

Bevordering tot volgende studiejaar

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.

Slaag met lof

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.



Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Omgewingsparadigmas 810 (ENV 810)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Omgewingsfilosofie en etiek. Omgewingsekologie, omgewing, gemeenskap en ontwikkeling, omgewingsekonomie, kritiese hulpbronbestuur. Waterbenutting, lug-kwaliteitsbeheer, beplanning van landbenutting. Kenmerke van grond. Beplanning van biodiversiteit. Determinisme versus ko-evolusionêre omgewingsraamwerke. Navorsings-metodologie en -praktyk.

Omgewingsreg 816 (ENV 816)

Modulekrediete	15.00
Diensmodules	Fakulteit Regsgeleerdheid
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 2 praktiese sessies per week, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

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.

Bome in 'n multifunksionele landskap 833 (ENV 833)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 besprekingsklasse per week, 1 webgebaseerde periode per week



Onderrigtaal	Module word in Engels aangebied
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Departement	Plant- en Grondwetenskappe
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Aanbiedingstydperk	Kwartaal 3
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Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Place and role of trees in multifunctional rural landscapes. Trees outside forests. Multipurpose trees. Trees and biodiversity. Trees and environmental services. Trees and sustainable development. Domesticated forests. Agroforestry (definition, classification, challenges and examples). Multiple use of forests and trees. Non-timber tree and forest products. Domestication of multipurpose trees. Forests and people. Trees and agricultural production systems (yield, interactions, synergy, competition, pests and diseases). Case-study examples from sub-Saharan Africa.

Miniverhandeling 891 (ENV 891)

Modulekrediete	90.00
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Voorvereistes	Geen voorvereistes.
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Onderrigtaal	Module word in Engels aangebied
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Departement	Dierkunde en Entomologie
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Aanbiedingstydperk	Jaar
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Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

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.

Bewaringsbeplanning en -monitering 808 (ZEN 808)

Modulekrediete	15.00
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Voorvereistes	Geen voorvereistes.
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Kontaktyd	4 besprekingsklasse per week
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Onderrigtaal	Module word in Engels aangebied
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Departement	Dierkunde en Entomologie
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Aanbiedingstydperk	Jaar
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Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Biodiversity survey techniques; data and information management; data assessment; principles of data extrapolation; inventories; biodiversity risk assessment (PHVA, small and declining population paradigms, prioritisation); principles of reserve selection; surrogacy; reserve design; integrated land-use planning. Landscape theories and models (hierarchy, percolation, metapopulation, source-sink); scaling patterns and processes across landscapes (patches, corridors, mosaics and flows); emerging patterns and processes; principles of landscape dynamics; principles of landscape conservation, management and design (transformation, fragmentation); methods in landscape ecology (numerical and spatial data processing, fractal geometry approach, GIS, remote sensing, GPS, spatially explicit population models).

Skills: GradSect, Access, Excel, Visual Basic, GIS (Arc View) reserve selection algorithms.

Biogeografie en makro-ekologie 809 (ZEN 809)

Modulekrediete 15.00

Voorvereistes Geen voorvereistes.

Kontaktyd 4 besprekingsklasse per week

Onderrigtaal Module word in Engels aangebied

Departement Dierkunde en Entomologie

Aanbiedingstydperk Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Biogeographic consequences of plate tectonics, Pleistocene southern African climatic, geological, edaphic and geomorphological patterns. Reconstructing biogeographic histories (speciation, extinction, dispersal, vicariance, endemism, provincialism and disjunction); phytogeographical patterns, biomes, vegetation types.

Methodological issues in macro-ecology; patterns of body size, abundance and energetics; geographic range sizes; species dynamics in landscapes; implications of macro-ecological patterns to ecology; biogeography and evolution; macro-ecological perspectives on conservation: species richness, hierarchical diversity, hotspots, spatial and temporal patterns in diversity (genetic, taxonomic, functional); causal mechanisms, species diversity, biodiversity and global change.

Keusemodules

Omgewing en Ontwikkeling 811 (ENS 811)

Modulekrediete 15.00

Voorvereistes Geen voorvereistes.

Onderrigtaal Module word in Engels aangebied

Departement Geografie, Geoinformatika en Meteorologie

Aanbiedingstydperk Jaar



Module-inhoud

Hierdie module fokus op die interaksie tussen sosiale en omgewingsdinamika. Dit dek aspekte van sosiale struktuur, kultuur, politiek, opvoeding, migrasie, produksie, stadsvorming, demografie en sosiale instellings en hul effek op die omgewing. Die materiaal sluit ook in die gevolg van impakte soos omgewingsverandering wat op hul beurt weer die samelewing beïnvloed. Die ontleding van komplekse verwantskappe tussen die samelewing en die omgewing, koppeling tussen die samelewing en omgewing en sinergistiese effekte tussen hierdie verskynsels.

Strategiese omgewingsbestuur 822 (ENS 822)

Modulekrediete 15.00

Diensmodules Fakulteit Regsgeleerdheid

Voorvereistes Geen voorvereistes.

Kontaktyd 2 besprekingsklasse per week, 5 lesings per week

Onderrigtaal Module word in Engels aangebied

Departement Geografie, Geoinformatika en Meteorologie

Aanbiedingstydperk Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Strategic environmental planning: introduction, objectives and principles; levels; South African overview; guidelines: national and international; strategy and management; structure, strategy and agency; South African guidelines; diagnostic tools; RESP analysis; strategic resource planning; applications, implementation and control; development and policy implementation; South African environmental policy; evaluation frameworks; portfolio analysis; competitive forces; alliances; business benefits; intangibles, survival and catalytic contributions; South African legislation and regulations.

Omgewing en Grondhervorming 823 (ENS 823)

Modulekrediete 15.00

Voorvereistes Geen voorvereistes.

Onderrigtaal Module word in Engels aangebied

Departement Geografie, Geoinformatika en Meteorologie

Aanbiedingstydperk Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The need and purpose of land reform in South Africa and its contribution towards sustainable social-environmental interaction. An overview of the global variety of land tenure systems, and tenure reform programmes in other countries. Overview of previous systems of land tenure in South Africa. Land reform policy in South Africa: restitution, redistribution, and tenure reform. Critical assessment of progress in terms of land reform objectives. Evaluation of the contribution of the South African land reform programme towards creating sustainable environments.

Sosiale modellering en bepaling 824 (ENS 824)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

In this module students will be introduced to the various methods of modelling and assessing social impacts. Specific emphasis will be placed upon modelling societal-economic-environmental interactions, formulating stochastic and dynamic models of population-development-environment interactions, conducting research to determine possible impacts of environmental changes on communities and performing social impact surveys. Students will be introduced to both quantitative as well as qualitative methods of conducting social impacts assessments.

Internasionale omgewingsbestuurstelsels 822 (ENV 822)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 lesings oor tydperk van 1 week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 2



Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The ISO framework, environmental risks and opportunities for companies, global environmental concerns, environmental legislation, identification of environmental impacts, environmental certification and auditing, follow-up activities, the Forestry Stewardship Council framework, chain of custody requirements, production standards, FSC reporting.

(** additional costs involved for international UK certificate)

Waterkwaliteitsbestuur 810 (EWM 810)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

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.

Waterbewaring- en aanvraagbestuur 821 (EWM 821)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

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.

Watervoorsiening en sanitasie 822 (EWM 822)

Modulekrediete	15.00
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Voorvereistes	Geen voorvereistes.
Kontaktyd	20 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

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

Bosbou-ekologie en -bestuur 835 (FOR 835)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 bpb, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Structure and function of natural forests, species composition and diversity, disturbance processes and regimes, recovery (succession) concepts and theory, biodiversity in forest ecosystems, energy and nutrient flux in natural forest ecosystems. Resource assessment and planning. Silvicultural systems and management of natural forests (and woodlands), natural regeneration and forest rehabilitation management for sustainability of natural forest ecosystems: multiple use for timber and non-timber forest products, forest rehabilitation (invader plants, mining, degraded forests).



Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Omgewingsparadigmas 810 (ENV 810)

Modulekrediete 15.00

Voorvereistes Geen voorvereistes.

Kontaktyd 5 besprekingsklasse per week

Onderrigtaal Module word in Engels aangebied

Departement Dierkunde en Entomologie

Aanbiedingstydperk Semester 1

Module-inhoud

Omgewingsfilosofie en etiek. Omgewingsekologie, omgewing, gemeenskap en ontwikkeling, omgewingsekonomie, kritiese hulpbronbestuur. Waterbenutting, lug-kwaliteitsbeheer, beplanning van landbenutting. Kenmerke van grond. Beplanning van biodiversiteit. Determinisme versus ko-evolusionêre omgewingsraamwerke. Navorsings-metodologie en -praktyk.

Omgewingsreg 816 (ENV 816)

Modulekrediete 15.00

Diensmodules Fakulteit Regsgeleerdheid

Voorvereistes Geen voorvereistes.

Kontaktyd 1 lesing per week, 2 praktiese sessies per week, 1 webgebaseerde periode per week

Onderrigtaal Module word in Engels aangebied

Departement Dierkunde en Entomologie

Aanbiedingstydperk Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

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.

Bome in 'n multifunksionele landskap 833 (ENV 833)

Modulekrediete 15.00

Voorvereistes Geen voorvereistes.

Kontaktyd 5 besprekingsklasse per week, 1 webgebaseerde periode per week



Onderrigtaal Module word in Engels aangebied

Departement Plant- en Grondwetenskappe

Aanbiedingstydperk Kwartaal 3

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Place and role of trees in multifunctional rural landscapes. Trees outside forests. Multipurpose trees. Trees and biodiversity. Trees and environmental services. Trees and sustainable development. Domesticated forests. Agroforestry (definition, classification, challenges and examples). Multiple use of forests and trees. Non-timber tree and forest products. Domestication of multipurpose trees. Forests and people. Trees and agricultural production systems (yield, interactions, synergy, competition, pests and diseases). Case-study examples from sub-Saharan Africa.

Miniverhandeling 891 (ENV 891)

Modulekrediete 90.00

Voorvereistes Geen voorvereistes.

Onderrigtaal Module word in Engels aangebied

Departement Dierkunde en Entomologie

Aanbiedingstydperk Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

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.

Bewaringsbeplanning en -monitering 808 (ZEN 808)

Modulekrediete 15.00

Voorvereistes Geen voorvereistes.

Kontaktyd 4 besprekingsklasse per week

Onderrigtaal Module word in Engels aangebied

Departement Dierkunde en Entomologie

Aanbiedingstydperk Jaar



Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Biodiversity survey techniques; data and information management; data assessment; principles of data extrapolation; inventories; biodiversity risk assessment (PHVA, small and declining population paradigms, prioritisation); principles of reserve selection; surrogacy; reserve design; integrated land-use planning. Landscape theories and models (hierarchy, percolation, metapopulation, source-sink); scaling patterns and processes across landscapes (patches, corridors, mosaics and flows); emerging patterns and processes; principles of landscape dynamics; principles of landscape conservation, management and design (transformation, fragmentation); methods in landscape ecology (numerical and spatial data processing, fractal geometry approach, GIS, remote sensing, GPS, spatially explicit population models).

Skills: GradSect, Access, Excel, Visual Basic, GIS (Arc View) reserve selection algorithms.

Biogeografie en makro-ekologie 809 (ZEN 809)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Biogeographic consequences of plate tectonics, Pleistocene southern African climatic, geological, edaphic and geomorphological patterns. Reconstructing biogeographic histories (speciation, extinction, dispersal, vicariance, endemism, provincialism and disjunction); phytogeographical patterns, biomes, vegetation types.

Methodological issues in macro-ecology; patterns of body size, abundance and energetics; geographic range sizes; species dynamics in landscapes; implications of macro-ecological patterns to ecology; biogeography and evolution; macro-ecological perspectives on conservation: species richness, hierarchical diversity, hotspots, spatial and temporal patterns in diversity (genetic, taxonomic, functional); causal mechanisms, species diversity, biodiversity and global change.

Keusemodules

Omgewing en Ontwikkeling 811 (ENS 811)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar



Module-inhoud

Hierdie module fokus op die interaksie tussen sosiale en omgewingsdinamika. Dit dek aspekte van sosiale struktuur, kultuur, politiek, opvoeding, migrasie, produksie, stadsvorming, demografie en sosiale instellings en hul effek op die omgewing. Die materiaal sluit ook in die gevolg van impakte soos omgewingsverandering wat op hul beurt weer die samelewing beïnvloed. Die ontleding van komplekse verwantskappe tussen die samelewing en die omgewing, koppeling tussen die samelewing en omgewing en sinergistiese effekte tussen hierdie verskynsels.

Strategiese omgewingsbestuur 822 (ENS 822)

Modulekrediete 15.00

Diensmodules Fakulteit Regsgeleerdheid

Voorvereistes Geen voorvereistes.

Kontaktyd 2 besprekingsklasse per week, 5 lesings per week

Onderrigtaal Module word in Engels aangebied

Departement Geografie, Geoinformatika en Meteorologie

Aanbiedingstydperk Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Strategic environmental planning: introduction, objectives and principles; levels; South African overview; guidelines: national and international; strategy and management; structure, strategy and agency; South African guidelines; diagnostic tools; RESP analysis; strategic resource planning; applications, implementation and control; development and policy implementation; South African environmental policy; evaluation frameworks; portfolio analysis; competitive forces; alliances; business benefits; intangibles, survival and catalytic contributions; South African legislation and regulations.

Omgewing en Grondhervorming 823 (ENS 823)

Modulekrediete 15.00

Voorvereistes Geen voorvereistes.

Onderrigtaal Module word in Engels aangebied

Departement Geografie, Geoinformatika en Meteorologie

Aanbiedingstydperk Jaar



Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The need and purpose of land reform in South Africa and its contribution towards sustainable social-environmental interaction. An overview of the global variety of land tenure systems, and tenure reform programmes in other countries. Overview of previous systems of land tenure in South Africa. Land reform policy in South Africa: restitution, redistribution, and tenure reform. Critical assessment of progress in terms of land reform objectives. Evaluation of the contribution of the South African land reform programme towards creating sustainable environments.

Sosiale modellering en bepaling 824 (ENS 824)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

In this module students will be introduced to the various methods of modelling and assessing social impacts. Specific emphasis will be placed upon modelling societal-economic-environmental interactions, formulating stochastic and dynamic models of population-development-environment interactions, conducting research to determine possible impacts of environmental changes on communities and performing social impact surveys. Students will be introduced to both quantitative as well as qualitative methods of conducting social impacts assessments.

Internasionale omgewingsbestuurstelsels 822 (ENV 822)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 lesings oor tydperk van 1 week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 2



Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The ISO framework, environmental risks and opportunities for companies, global environmental concerns, environmental legislation, identification of environmental impacts, environmental certification and auditing, follow-up activities, the Forestry Stewardship Council framework, chain of custody requirements, production standards, FSC reporting.

(** additional costs involved for international UK certificate)

Waterkwaliteitsbestuur 810 (EWM 810)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

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.

Waterbewaring- en aanvraagbestuur 821 (EWM 821)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

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.

Watervoorsiening en sanitasie 822 (EWM 822)

Modulekrediete	15.00
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Voorvereistes	Geen voorvereistes.
Kontaktyd	20 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

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

Bosbou-ekologie en -bestuur 835 (FOR 835)

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 bpb, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Structure and function of natural forests, species composition and diversity, disturbance processes and regimes, recovery (succession) concepts and theory, biodiversity in forest ecosystems, energy and nutrient flux in natural forest ecosystems. Resource assessment and planning. Silvicultural systems and management of natural forests (and woodlands), natural regeneration and forest rehabilitation management for sustainability of natural forest ecosystems: multiple use for timber and non-timber forest products, forest rehabilitation (invader plants, mining, degraded forests).

Die inligting wat hier verskyn, is onderhewig aan verandering en kan na die publikasie van hierdie inligting gewysig word.. Die [Algemene Regulasies \(G Regulasies\)](#) is op alle fakulteite van die Universiteit van Pretoria van toepassing. Dit word vereis dat elke student volkome vertrouwd met hierdie regulasies sowel as met die inligting vervat in die [Algemene Reëls](#) sal wees. Onkunde betreffende hierdie regulasies en reëls sal nie as 'n verskoning by oortreding daarvan aangebied kan word nie.