

College of Agriculture and Environmental Sciences

Research focus areas for 2021: Department of Environmental Sciences

Environmental Management and Environmental Sciences Programme Group

Focus area	Researchers in the focus area	Specialisation of researchers in the focus area	Profile of the researcher	Research project themes	Capacity per researcher for 2021
Environmental management	Roelien du Plessis dplesr@unisa.ac.za	Waste management	Roelien du Plessis is a lecturer in the Department of Environmental Sciences, with a MSc obtained from Unisa. Her expertise lies in the broad area of Environmental Management with a specific focus on Waste Management and licensing.	1. Recycling initiatives. 2. Waste management in municipalities 3. All waste management	MSc: 1
	Prof K Mearns mearnkf@unisa.ac.za	Sustainable tourism Nature-based tourism Community-based natural resource management	Prof Kevin Mearns is a full professor in the Department of Environmental Science. Prof Mearns hold a PhD degree from the University of Portsmouth in the United Kingdom. Prof Mearns' research interests include the sustainability of tourism	1. Water/Waste and Energy Benchmarking of Nature-based tourism 2. Community-based natural Resource 3. Management with emphasis on tourism. 4. Coastal and Marine tourism	MSc: 2 PhD:1

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			(including social, economic and environmental aspects), the social dimensions of conservation areas, ecotourism, community-based tourism and community-based natural resource management. Methodology expertise: Qualitative and Mixed-method research		
	Prof JA Wessels wessey@unisa.ac.za	Environmental Impact Assessment and Follow-up	Prof Jan-Albert Wessels is an associate professor in the Department of Environmental Sciences. He holds a PhD from the North-West University. His research focus on human capital development and capacity building through establishing Environmental Impact Assessment (EIA) follow-up as a measure of enhancing the scientific contribution of environmental impact assessment and management to sustainability compliance. Methodology expertise: Mixed-method research	1. Enhancing EIA Follow-up in Environmental Impact Assessment and Management Systems (EIAMS) 2. Defining the roles and responsibilities of Actors in EIA Follow-up 3. Determining the value of independent and community based monitoring and verification Actors 4. Regulating the professionalism of Actors in EIA Follow-up of sustainability commitments	MSc: 2
	U van den Berg	EIA Impact management IEM Environmental Frameworks and Policies	Mrs Unine van den Berg is a lecturer in the Department of Environmental Sciences. Her research focus is IEM and		MSc: 0

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			impact mitigation management.		
	Ms M Baker	Environmental management, Sustainable management of fresh water resources, Sustainable tourism	Melissa Baker is a Lecturer at the University of South Africa (Unisa) and currently lectures Environmental Management; in the Department of Environmental Science. She studied at University of Johannesburg, where she completed her undergraduate degree in tourism development in 2010. As an undergraduate student she was a triple major; taking geography as her third major. While studying geography she was introduced to the field of environmental management during her Honours degree; which she completed in 2011. This led to a new field of interest and in 2013 she graduated with a Masters degree in Environmental Management; at the University of Johannesburg. She is currently registered for her PhD in Environmental Management at Unisa. Her areas of interest are environmental management, fresh water resource management and	<ol style="list-style-type: none"> 1. Local economic dependence on Adventure tourism, climate vulnerability of tourism sector to climate change. 2. Trail running tourism in South Africa. 3. Biomonitoring of aquatic Ecosystems as an indicator of water quality. 	MSc: 1

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			sustainable tourism development. Methodology expertise: Mixed-method research.		
	Dr M Togo		Dr M Togo is a Senior Lecturer in the Department of Environmental Sciences. She holds a PhD from Rhodes University. Her research focus is on the broad area of Environmental Management with a specific focus on responses to climate change impacts and adaptive (green) responses in various sectors (policy and practice). Methodology expertise: Mixed-methods research	<ol style="list-style-type: none"> 1. Greening initiatives in response to climate change impacts (policy and practice) 2. Green transportation in Higher Education institutions <ul style="list-style-type: none"> • SDG implementation in Universities • Household WEF challenges, coping strategies and nexus greening and the role of Universities 3. 4. 	
	Dr M Chitakira	Society-environment interaction: Ecoagriculture	Dr M Chitakira is a senior lecturer in the Department of Environmental Sciences at Unisa. Dr Chitakira holds a PhD in Environment and Society from the University of Pretoria, a Masters in environmental Policy and Planning and a Post-graduate Diploma in Education from the University of Zimbabwe. Dr Chitakira's research interest is in the dynamics of the interaction between human	<ol style="list-style-type: none"> 1. Urban agriculture in Africa – in relation to sustainable Development goals (SDGs), food security, resilience and adaptation to climate change; 2. The youths and agriculture; 3. Critical success factors for climate-smart agriculture in the African context; 4. Stakeholder engagement in environmental management. 	MSc: 1 PhD: 1

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			beings and the biophysical environment with a focus on climate smart landscapes management (climate- smart agriculture; climate-smart Livelihoods); gender and the Environment, transfrontier conservation areas management and stakeholder engagement.		
Environmental management /Environmental sociology	Prof L Leonard		Prof Leonard is a full professor in the department of Environmental Sciences. Prof Leonard has an MSc (Water Quality and Environmental Management) from the University of Durban Westville (now KwaZulu-Natal), South Africa and a PhD from Kings College London. His research interests include environmental justice and sustainability with focus on democracy and governance; civil society-state-industry relations. Before joining academia he worked on environmental justice issues related to industrial, medical and municipal waste, landfills, mining, air pollution, incineration, cleaner production techniques and obsolete pesticides to name a few.	<ol style="list-style-type: none"> 1. Civil society-state-industry conflicts over the environment and development. 2. Industrial development impacts on tourism/conservation areas 3. Climate change and sustainable livelihoods 4. Governance of the Environment 5. Science communication and industrial expertise 	Masters: 7 PhD: 3

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Green infrastructure	Ms Liezl Craig craigl@unisa.ac.za	Low Impact Development	Ms Liezl Craig is a lecturer in the Department of Environmental Sciences. She has a background in landscape architecture and holds a Master's degree in Integrated Water Management from Monash South Africa. She is currently enrolled for a PhD with North-west University in Development and Management for Water Studies. Her research focus is on the use of green infrastructure in the South African context.	<ol style="list-style-type: none"> 1. Diffusion of green infrastructure in South Africa 2. Sustainable stormwater management 3. Integrated urban water management 4. Value of green open spaces 5. Knowledge transfer on green infrastructure 	MSc: 1
Urban forestry and climate change mitigation and adaptation in mostly urban settings	Prof Hennie Stoffberg	Urban forestry dynamics Landscape architecture and green infrastructure Vegetative Carbon accounting and carbon footprints	Hennie Stoffberg is an Associate Professor specializing in carbon sequestration and accounting mostly in urban environments. He holds a PhD in Urban Forestry, Masters of Environmental Sciences and Bachelor in Landscape Architecture. Prof Stoffberg is ideally suited to work across disciplines and in multidisciplinary environments. Quantitative methodologies are required.	<ol style="list-style-type: none"> 1. Urban forest analysis 2. Urban carbon sequestration, storage and commerce. 3. Tree inventories 4. Carbon footprints 	MSc: 1 PhD: 1
Water Science and Policy	Ms Malebo Matlala	Water Quality Monitoring,	Ms Matlala is a lecturer in the Department of Environmental Sciences. She holds an MSc Degree in Botany (Water Science-	<ol style="list-style-type: none"> 1. Water Quality Monitoring 2. Transboundary Water Governance 3. GIS and Remote Sensing 4. applications in water studies 	MSc: 2

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			focusing on the use of diatoms to monitor water quality), from the North-West University, an LL.M Degree in Water Law from the University of Dundee, and she is currently busy with her PhD which combines Water Science and Water Law, with the aim of influencing Water Policy. She is interested in biomonitoring of aquatic ecosystems, as well as the use of GIS and Remote Sensing	<ul style="list-style-type: none"> 5. Groundwater monitoring 6. Aquatic Ecology Water Quality Monitoring (surface waters, groundwaters, wetlands) 7. Protection of Ecosystem services 	
Remote Sensing of the Environment	M Jordaan jordam@unisa.ac.za	Satellite Image Analysis	Mr M Jordaan is a lecturer in the Department of Environmental Sciences, With MSc from UJ. His research focus is remote sensing for environmental applications.	<ul style="list-style-type: none"> 1. Spectral analysis of vegetation 2. Accuracy assessment of remote sensing methods 3. Remote Sensing applications for conservation purposes 	MSc: 1
Environmental Science and Environmental Management	Ms K Semanya semenk@unisa.ac.za	Household energy	Ms K Semanya is a lecturer in the Department of Environmental Sciences, With MSc from UNISA. Her research focus is household Energy and air pollution in rural areas.	<ul style="list-style-type: none"> 1. Drivers of Household energy 2. Pollution caused by the use of alternative fuel materials. 3. Health and Environmental impacts caused by alternative fuel material. 	MSc: 3
Environmental Pollution, Ecotoxicology and Remediation Studies (EPERS)	Prof M Tekere tekerm@unisa.ac.za	Environmental Microbiology/biotechnology Pollution and remediation	Prof Tekere is a full professor in the Department of Environmental Sciences. Her research experience and interests are in Environmental Biotechnology and Microbiology and her	<ul style="list-style-type: none"> 1. Microbial diversity in different environments and bioprospecting 2. Pollution Bioremediation research studies 3. Environmental pollution incl. emerging pollutant studies, 	MSc: 3 PhD: 1

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			work focuses on bioremediation of pollutants as well as the study of microbial diversity in different habitats particularly extreme and polluted environments. Other areas of research interest include water quality, municipal and industrial waste water treatment and solid waste management.	water quality and waste management	
	Dr LL Sibali siballl@unisa.ac.za	Environmental/ Analytical Chemistry	Dr Sibali is a Senior Lecturer and Chair of Department: Environmental Sciences. His research focus area is based on chemical pollutants (e.g. Endocrine Disrupting Compounds (EDCs) in the environment).	Pollution monitoring and remediation of chemical pollutants in the environment.	MSc: 4 PhD: 1
	Mrs TC Fouché fouchtc@unisa.ac.za	Soil ecotoxicology	Mrs. T Fouché is a senior lecturer in the department of environmental sciences. She is currently completing her PhD in Env. Science. Her research focuses on the ecotoxicological and genotoxic effect of organic and inorganic pollutants in the soil ecosystem. Other research interests include ecological remediation and restoration.	<ol style="list-style-type: none"> 1. Assessing anthropogenic impacts (agricultural and chemical industry) on soil quality utilising bioindicator assays. 2. Assessing the phytoremediation ability of various crops on heavy metal polluted soil. 3. Ecological remediation and restoration. 4. Landscape function analysis 	MSc: 2
	Dr KW Maphangwa maphakw@unisa.ac.za	Environmental Monitoring and Assessment	Dr KW Maphangwa is a Lecturer in the Department of Environmental Sciences. He holds a Master's degree from University of the	<ol style="list-style-type: none"> 1. Lichens as indicators of pollution 2. Biodiversity of lichens in South Africa 3. Environmental monitoring 	MSc: 2

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			Western Cape and PhD in Environmental Science from UNISA		
Environmental Soil Science, Pollution studies and Exposure Health Risk Assessment	VM Ngole-Jeme	Environmental soil chemistry Heavy metal behaviour in soils Exposure risk assessment Emerging pollutants in the environment	Prof VM Ngole-Jeme is a Professor in Environmental Sciences. She holds a PhD in Environmental Sciences from University of Botswana. Her Research focuses on monitoring and assessment of inorganic pollutants in the soil environment and evaluation of the environmental and human health risks associated with exposure to these pollutants. She has vast experience in the characterisation of heavy metals and emerging pollutants in various environmental media.	1. Heavy metal pollution and behaviour in the soil 2. Exposure risk assessment of heavy metals in the environment 3. Endocrine disruptive compounds in the environment	MSc: 2 PhD: 1
Air Pollution and Health Effects	Ms Nomsa Thabethe ethabend@unisa.ac.za	Air Quality,	Nomsa Thabethe is a Lecturer in the Department of Environmental Science. She holds 2 Masters degrees, one in Environmental health (Tshwane University of Technology) and the other one in Epidemiology (University of Pretoria). She is currently studying towards a PhD in Exposure Science/ Public Health with the University of the Witwatersrand. Her PhD	1. Ambient air Monitoring 2. Dispersion modelling 3. Environmental Health 4. Air Quality	MSc: 3

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			focuses on ambient particulate monitoring and sampling, dispersion modelling, particle characterisation and probabilistic human health risk assessment.		
Environmental Sciences/Soil Science	Dr GP Nortje nortjgp@unisa.ac.za	Soil Science in Conservation. Human impact on soils in protected areas. Soil rehabilitation. Soil surveys and road planning for Protected areas. Sub-tropical fruit production.	Dr Gerhard Nortjé is a Senior lecturer in Soil Science/Environmental Science. He holds a PhD degree in Wildlife Management/Soil Science from the University of Pretoria, and a Master degree in Sustainable Agriculture from the University of the Free State. His research interests are the application of Soil Science in Conservation, Soil-Plant relationships, Eco-tourist's impacts on the soil/vegetation, Soil mapping for sustainable road planning and off-road driving in protected areas, Sustainable Subtropical fruit production and fertilization. Methodology expertise: Mixed-method research	<ol style="list-style-type: none"> Human/Eco-tourist impacts on soil physical degradation in protected areas Soil crusting/sub-soil compaction <ul style="list-style-type: none"> Development of sustainable recreational activities in protected areas-MTB routes etc. Protected area management Soil/Plant relationships Subtropical fruit production (avocado, macadamia) – production, fertilization, norms, irrigation, stinkbug management. Soil rehabilitation Sustainable soil management. Diagnosis and Recommendation Integrated System (DRIS) to assess the Nutritional State of crop plants 	MSc: 2 PhD: 2
Plant and Soil	Dr L Khomo	Soil biochemistry	I work on the biogeochemistry of soil, plant and animal interactions in natural ecosystems	Anything related to plant, soil and animal dynamics in natural ecosystems.	MSc: 2 PhD: 2

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Environmental Geology	Me HJ van Niekerk vniekhj@unisa.ac.za	Environmental Geology	<p>Mrs HJ van Niekerk is a lecturer in the Department of Environmental Sciences. She holds post graduate qualifications in Environmental Geology and Distance Education. Her research experience and expertise are on sedimentology, isotopic geochemistry (detrital zircon U-Pb geochronology, Nd and Sr), and geological block modelling. Her work focuses on the provenance and palaeo-depositional environments of sedimentary basins, and the development of drainage basins in Africa. Other areas of interest includes whole rock and mineral geochemistry and water related issues.</p> <p>Methodology expertise: Qualitative research/ case study research</p>	<ol style="list-style-type: none"> 1. Effects of Pliocene-Pleistocene climatic changes on the evolution of The Orange, Limpopo and Zambesi Rivers, Southern Africa 2. Geoparks in South Africa 3. Water Legislation in SA 	MSc: 2
	Dr Lindani Ncube ncubel@unisa.ac.za	Environmental Geology	<p>Dr L Ncube is a Lecturer in the Department of Environmental Sciences. She holds a PhD in Geology from the University of Fort Hare. Her research experience and expertise are on sedimentology, isotopic geochemistry (detrital zircon U-Pb geochronology, Nd and</p>	<ol style="list-style-type: none"> 1. Effects of Pliocene-Pleistocene climatic changes on the evolution of the Limpopo and Zambesi Rivers, Southern Africa 2. Geoparks in South Africa 3. Water Legislation in SA 	MSc: 2 PhD: 2

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			<p>Sr), and geological block modelling. Her work focuses on the provenance and palaeo- depositional environments of sedimentary basins, and the development of drainage basins in Africa. Other areas of interest include whole rock and mineral geochemistry and water related issues.</p> <p>Methodology expertise: Qualitative research/ quantitative research</p>		