

College of Agriculture and Environmental Sciences

Research focus areas for 2023: Department of Life and Consumer Sciences - Life Sciences

Focus area	Researchers in	Specialisation of	Profile of the researcher	Research project themes	Capacity per
	the focus area	researchers in			researcher for
		the focus area			2022
Molecular and	Prof Ntwasa	Biochemistry	Professor of Biotechnology in the Department	Anticancer and antimicrobial DDDR	Masters: 5
Cell Biology in			of Life & Consumer Sciences. Research in	2. Molecular basis of carcinogenesis	PhD: 3
Health			Prof Ntwasa's group focuses on anti-cancer		
			and anti-microbial drug discovery and the		
Contact person:			molecular basis of carcinogenesis. The group		
Prof Ntwasa			offers training in drug Discovery and		
			Development Research (DDDR) as well as		
			fundamental research in Biomedical Sciences.		
	Prof Gildenhuys	Protein	Prof Gildenhuys is an associate professor in	Viral capsid proteins	Masters: 2
		Biochemistry	the Department of Life and Consumer	2. Protein ligand interactions	PhD:2
			Sciences. She holds a PhD from University of	3. Protein stability and folding	
			the Witwatersrand. Her research focuses on		
			studying proteins stability and function. Protein		
			ligand interactions and their role as drugs or		
			modification agents in biological drug		
			formulations.		

University of South Africa, College of Agriculture and Environmental Sciences Research focus areas for 2023

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			Methodology expertise: Protein purification, Bacterial protein expression, Spectroscopic analysis (Circular dichroism and Fluorescence), DSC (Differential scanning calorimetry), ITC (Isothermal titration calorimetry), Bioinformatics limited to homology modelling and molecular docking.		
	Dr Parbhoo	Protein Biochemistry	Dr Parbhoo is a Lecturer in the Department of Life and Consumer Sciences. He holds a PhD from University of the Witwatersrand. His research focuses on studying proteins stability and function. Methodology expertise: Protein purification (chromatography), Bacterial protein expression, Spectroscopic analysis (Circular dichroism and Fluorescence), ITC (Isothermal titration calorimetry), flow cytometry computational molecular docking and drug design.	 Overexpression of virus capsid proteins Computational docking of anti-cancer compounds Anti-cancer assays 	Masters: 2 PhD: 1
	Mr Mkhombo	Protein Biochemistry	Mr Mkhombo is a lecturer in the Department of Life and Consumer Sciences. Currently he has registered for a PhD degree and investigates the determination types of advanced glycation end-products formed such as carboxymethyllysine and crosslinks formation like dimers or trimers in diabetes.	Enzyme kinetics under different conditions	Masters: 1 PhD: 0

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	Prof Christian	Genetics Molecular Biology	Prof Riann Christian is an associate professor in the Department of Life and Consumer Sciences. She obtained her MSc from University of KwaZulu-Natal and her PhD from University of the Witwatersrand. She has 13 years' experience in molecular biology in insecticide resistance in malaria vectors Methodology expertise: DNA and RNA extraction, PCR, cDNA synthesis, cloning, QPCR, biochemistry, ELISA, Taqman assays, microarrays, insecticide susceptibility assays, fungal insecticide assays, RNA interference, CRISPRi	Insecticide resistance Gene expression studies Molecular characterization and detection of infection in vectors	Masters: 3 PhD: 2
	Prof Mapholi	Genetics and Molecular Biology	Dr Ntanganedzeni Mapholi is a Senior Lecturer in the Department of Life and Consumer Sciences. She obtained her Doctoral Degree in Animal Science from the University of Stellenbosch. Her research focuses on the following: Breeding and Genomics, Genetic diversity, and DNA forensics.	 QTL mapping Genome sequencing Gene expression DNA profiling Genetic characterization of tick species 	Masters: 2 PhD: 2
	Dr Masebe	Microbiology and Molecular Biology	Dr Tracy Masebe is a Senior Lecturer in the Department of Life and Consumer Sciences. She obtained her Doctoral Degree in Microbiology from the University of Venda. Her research focuses on the following: Tick-borne pathogens, Molecular Biology, HIV Pharmacogenomics, and Investigation of plant-derived bioactive compounds with antimicrobial properties.	 Genetic diversity and characterization of microbial pathogens Gene expression Genome Sequencing DNA profiling 	Masters: 1 PhD: 1

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	Ms Matshotshi	Molecular Biology	Ms Matshotshi is a lecturer of Zoological Sciences in the Department of Life and Consumer Sciences. She holds an MSc in Zoology from the University of Pretoria (UP). Currently registered for a PhD with North-West University (NWU). Her research focus is on Tick-borne diseases of veterinary, medical and environmental importance. Her research interests molecular epidemiology	1.	Molecular Epidemiology of Zoonotic Disease.	Masters: 1
	Dr Mdyogolo	Molecular Biology Animal breeding and Genetics / Genomics	Dr Sinebongo Mdyogolo is a Lecturer in the Department of Life and Consumer Sciences. She obtained her PhD degree in Animal Breeding and Genetics from the University of the Free State. Her research focus are in Animal Breeding and Genetics/Genomics (integration of Quantitative Genetics and Genomics) and population genetics.	1. 2.	Animal breeding& Genetics. Genomic association studies using SNP markers and sequence data.	Masters: 1 PhD: 1
	Prof Tsotetsi- Khambule	Veterinary Parasitology	Prof Tsotetsi-Khambule is an Associate Professor in the Department of Life and Consumer Sciences. She obtained her MSc from the University of the North and her PhD from Rand Afrikaans University, now UJ. Her research focus is on the epidemiology of parasitic helminths and parasites of one health importance.	1. 2. 3. 4.	for nematodes of livestock. Anthelmintic resistance in livestock Anthelmintic activity of medicinal plants.	Masters: 3 PhD: 1
	Mr Monyama	Molecular Biology	Mr Monyama is a lecturer in the Department of Life and Consumer Sciences. He holds a Master's degree from the University of South Africa. His research focus is on - Molecular characterization of flies and pathogens they	1. 2. 3.	Molecular epidemiology and diagnostics	Masters: 0 PhD: 0

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			are harbouring or transmitting. Where I am more interested in doing metagenomics, gene discovery (transcriptomic), epidemiology and molecular diagnostics.		
	Mr Chabalala	Aquatic Zoology	Mr Chabalala is a lecturer in the Department of Life and Consumer Sciences. He holds a Master's of Science degree in Zoology from the University of Limpopo. His research focus is freshwater ecology, Zooplankton and phytoplankton, entomology and parasitology. Methodology expertise: water quality analysis, Health Assessment Index & Histopathology, Integrated Parasite Index, Age determinations, Fish & Plankton species identification techniques.	Freshwater ecology Animal health and parasitology Entomology (Ants studies)	Masters: 0 PhD: 0
	Mrs Molefe	Microbiology	Mrs Letlhogonolo R. Molefe is a lecturer in the Department of Life and Consumer Sciences. She holds a Master's degree from the North West University. Her research focus is on the following: Post-harvest handling, fungal biopreservatives, food safety and development of food preservatives. Methodology expertise: molecular biology, proteomics, probiotics, Sanger sequencing, NGS, shelf-life and storage.	 Genetic diversity and characterization Isolation and identification of Microbial species Genome Sequencing Characterisation of food pathogens Prevalence of mycotoxins in foods and decontamination 	Masters: 1 PhD: 0
	Mr Malindisa	Drug discovery and development of anticancer	Mr Sibusiso T Malindisa is a lecturer of Biotechnology in the Department of Life and Consumer Sciences. He holds an MSc in		Masters: 4 PhD: 0

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		drugs targeting the cell cycle proteins	Molecular and Cell Biology from the University of the Witwatersrand (Wits). Currently registered for a PhD. His research focus is on drug discovery and development of anticancer drugs targeting the cell cycle proteins. His research interests include pharmacodynamics and pharmacogenetics of anticancer drugs, anti-ageing and human genetics. Methodology expertise: Genotyping, Cell Biology, Sanger Sequencing, Real-time PCR		
	Dr Mlangeni	Molecular biology	and general molecular biology techniques. Dr Malitaba Mlangeni is a Lecturer in the Department of Life and Consumer Sciences. She obtained her Doctoral Degree in Zoology from the North-West University. Her research focus on the following: Tick-borne pathogens, Equine venereal diseases, Equine parasites, Molecular biology, Serological Assays and Veterinary Parasitology	Molecular characterization, identification and Epidemiology of zoonotic diseases Prevalence and distribution of parasites of one health importance and of veterinary parasitology. Development of diagnostic tools	Masters: 1 PhD: 1
	Dr KA Maswanganye	Animal physiology	Dr K Amanda Maswanganye is a Zoology Lecturer in the Department of Life and Consumer Sciences (Extended Science Program). She holds an MSc in Zoology from the University of Pretoria (UP). She is currently registered for a PhD. Her research focuses on the following: Zoology, Phytogeography, Population Genetics, Conservation and Species distributions in small mammals from southern Africa.	 Zoology Reproductive physiology Phylogeography and Population Genetics Species distributions Conservation 	Masters: 1 PhD: 1

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	Dr Tambani	Molecular Biology and Protein Biochemistry	Dr Tambani is a Lecturer in the Department of Life and Consumer Sciences. She holds a Doctoral Degree in Microbiology from the University of Venda. Her research focuses on, HIV diversity, replication and inhibition, Molecular Biology, Molecular modelling and peptide designing.	 HIV-1 proteins, structure/function, intersubtype variation Development of peptides and molecular modelling targeting HIV-1 Development of HIV-1 inhibitory assays 	Masters: 2 PhD: 1
	Dr Mosebi	Protein Biochemistry	Dr Mosebi is as senior lecturer in the Department of Life and Consumer Sciences. He obtained his PhD from the University of the Witwatersrand. His research focuses on mechanisms of viral pathogenesis and antiviral drug discovery, as well as the development of novel diagnostic tools for animal and human diseases. He uses cell biology, genetics, structural biology, molecular modelling and drug discovery techniques to investigate and understand the molecular properties of HIV integration, viral-host factor relationships in viral pathogenesis and replication of retroviruses (e.g., HIV-1).	 Drug Discovery in HIV and cancer (<i>in-silico</i> modelling, compound synthesis and screening). Food security (discovery, design and development of novel insecticidal agents in the agricultural sector) Development of novel diagnostic tools for cancer, COVID-19, HIV and zoonotic diseases (e.g., rift valley fever virus). 	PhD: 1 MSc: 0
	Mr Twala	Protein Bioinformatics	Mr Charmy S. Twala is a Lecturer in the Department of Life and Consumer Sciences. He holds an MSc in Bioinformatics and an HDIP in Computer Science from the University of the Witwatersrand. Currently registered for a PhD. His research focus adopts a computational approach on drug discovery and development of anticancer drugs targeting cell cycle proteins. His research interests include lead optimisation to produce preclinical drug candidates and the development of software or computational tools to aid in facilitating drug discovery research.	 In silico protein modelling and validation. Database screening (High throughput Virtual screening (HTVS), Standard precision (SP), and Extra precision (XP)) and molecular docking. Lead Optimisation to improve pharmacodynamics and pharmacokinetics of anti-cancer drugs Molecular Dynamics (MD) simulations to probe the structural and 	Masters: 1 PhD: 0

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	Mr Mashapa	Protein	Mr Mashapa is a fixed term contract Lecturer	thermodynamic stability of protein- ligand complexes	Masters: 0
	IVII IVIASTIAPA	Biochemistry	in the Department of Life and Consumer Sciences. He holds an MSc from the University of the Witwatersrand. His research focuses on studying proteins structure and function. Methodology expertise: Recombinant protein expression in bacterial systems, Protein purification (chromatography), Spectroscopic analysis (Circular dichroism and Fluorescence), and 2DE gel based proteomic techniques.	 Protein overexpression and purification Protein stability and folding Protein-ligand interaction Macromolecular (protein-protein/subunit-subunit) interactions 	PhD: 0
	Prof Meddows- Taylor	Microbiology	Prof Stephen Meddows-Taylor is an Associate Professor in the Department of Life and Consumer Sciences. He obtained his MSc and PhD from the University of the Witwatersrand. His research focuses on the role that microorganisms play in climate change and microbial bio-resources in sustainable agriculture Methodology expertise: Cell bioassays, ELISA, flow cytometry, molecular biology	Microbial bio-resources The role of microorganisms in climate change	Masters: 2 PhD:1
	Ms Mafokwane	Molecular Biology and parasitology	Ms Mafokwane is a Molecular biology lecturer in the Department of Life and Consumer Sciences. She holds a Master's degree from the University of Venda. Her research focus is on - Molecular characterization of enteric pathogens(bacterial, viral and parasitic). Her interests are shotgun metagenomics, whole transcriptomic analysis, ,molecular epidemiology and molecular diagnostics.	Molecular characterisation of enteric pathogens (viral, bacterial and parasitic) Molecular diagnostics Genome sequencing Gene expression	Masters: 3 PhD: 0

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	Ms Inderpal- Pillay	Molecular biology and cellular Metabolism	Ms Inderpal-Pillay is a lecturer in the Department of Life and Consumer Sciences. She holds a BSc degree in Microbiology and Genetics, BSc Honours in Genetics and a MSc in Biochemistry from the University of KwaZulu-Natal. Her research focuses on bioenergetics and metabolism as well as metabolic diseases/disorders.	 Development of viability techniques in the study of yeast and fungi Understanding yeast and fungal metabolism and its impact on human metabolic disorders. Molecular techniques 	Masters 1 PhD 0
	Dr Sooklal	Protein biochemistry and industrial biotechnology	Dr Sooklal is a replacement lecturer in the Department of Life and Consumer Sciences. She holds a PhD from the University of the Witwatersrand (Wits). Her research focuses on the identification and characterisation of new biocatalysts for the sustainable synthesis of pharmaceuticals and other high-value products. Methodology expertise: Protein expression, protein purification, protein characterisation techniques, bioinformatics.	In silico approaches to identify biocatalysts Expression and characterisation of biocatalysts Transcriptomic and proteomic analysis of plants	Masters: 2 PhD: 0
	Mr Kgokolo	Biochemistry	Mr Samuel Kgokolo is a fixed term lecturer in the Department of Life and Consumer Sciences. He holds a BSc (hons) degree in medical science (clinical pathology), and an MSc in Life Sciences (protein Biochemistry). His research focuses on gene manipulation; protein expression, purification and characterisation.	 Cloning Protein expression Protein folding and stability assessment 	Masters 0 PhD 0

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Industrial Applications of Natural Sciences Contact person: Prof SL Lebelo	Dr Nyila	Phytomedicine	Dr Nyila is a senior lecturer in the Department of Life and Consumer Sciences. He holds BSc (Majors in Microbiology and Biochemistry) from the University of the Western Cape, BSc (Honours in Microbiology) from the University of the Western Cape, MSc (Environmental Biotechnology) from Rhodes University, PhD (Plant Science /Botany) from the University of Pretoria. His PhD thesis title is Antilisterial bioactivity and /or biofilm-formation by compounds from Plectranthus ecklonii Benth. and Acacia karroo Hayne	 Antibacterial activity of medicinal plants against foodborne pathogens. Medicinal plants with antibacterial activity against <i>Listeria</i> monocytogenes. Pharmacognosy, phytomedicine, phytochemistry Phytochemical screening of medicinal plants for antimicrobial activity, isolation, characterisation and identification of bioactive compounds. Food microbiology 	Masters: 3 PhD: 5
	Prof Lebelo	Phytomedicine	Prof SL Lebelo is an Associate Professor and Chair of the Department of Life and Consumer Sciences. He holds a PhD from the University of the Western Cape. He is currently seconded to the Directorship in the School of Agriculture and Life Sciences. His research focus is on medicinal plant use in the treatment and management of ailments such as hypertension, diabetes, pain, and male infertility. Methodology expertise: Qualitative and quantitative studies	 Phytochemical screening of plants extracts Identification of active compounds Androgenic, anti-diabetic, anti-inflammatory, and anti-hypertensive properties of medicinal plants 	Masters: 2 PhD: 2
	Prof SR Magano	Medicinal plants and Tick Biology	Professor of Zoology in the Department of Life & Consumer Sciences. He is currently the Executive Dean of the College of Agriculture and Environmental Sciences. His research focuses on medicinal plants and tick biology.	Medicinal plants use Tick biology	PhD: 2

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	Ms Mulaudzi	Phytomedicine	Ms Rofhiwa Mulaudzi is a Lecturer of Botany in the Department of Life and Consumer Sciences. She holds an MSc in Botany from the University of Kwa-Zulu Natal (UKZN). Currently registered for a PhD. Her research focus is on antimicrobial, antioxidant, toxicity, phytochemical and screening activities of medicinal plants. Phytochemistry and cosmetic potential of medicinal plants.	 Antioxidant and antimicrobial screening of medicinal plants. Phytochemical levels and nutritional properties of medicinal plants Identification of active compounds 	Masters: 3 PhD: 0
	Dr TE Ramadwa	Phytomedicine	Dr Ramadwa is a lecturer in the Department of Life and Consumer Sciences. He holds an MSc with distinction and PhD from the University of Pretoria where he was also a Post-doctoral fellow. His research focus area is mainly on drug discovery from natural products, particularly against Nosocomial pathogens, Mycobacteria, Fungi and Inflammation. He is also interested in investigating the <i>in vitro</i> cytotoxicity and in <i>vivo toxicity</i> in mice of bioactive compounds.	Drug discovery from natural products Isolation and characterization of antibacterial, antifungal, antimycobacterial and anti-inflammatory compounds from medicinal plants. In vitro cytotoxicity and in vivo in mice of bioactive compounds	Masters: 2 PhD:1
	Dr Dingaan	Grassland Ecology	Dr Mamokete Dingaan is a Senior Lecturer in the Department of Life and Consumer Sciences. She holds a PhD from University of the Free State. Her research focus is on vegetation classification and mapping; biodiversity, climate change and ecosystem functioning; and also plant–grazer interactions in grassland.	Biodiversity and productivity in the Grassland Biome of South Africa	Masters: 3 PhD: 3
	Prof Tabit	Food microbiology	Prof Frederick T Tabit is a professor in the Department of Life and Consumer Sciences.	Microbial contamination and quality of foods	Masters: 3 PhD: 2

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			He holds a Masters in Bio-and Food Technology from Lund University (Sweden) and PhD in Food Science from University of Pretoria (South Africa). His research focus is on Food product development, food safety and food microbiology. Methodology expertise: Experimental research	 Food safety implementation and quality assurance Prevalence and antimicrobial resistance genetic and phenotypic profiles of foodborne pathogens Prevalence of fungi contamination and mycotoxins in food Antifungal and antibacterial activities of Lactobacillus species isolated from traditional fermented food products (Contact me @ tabitft@unisa.ac.za for details) 	
	Dr Mankga	Plant Ecology	Her research focus are as follows: 1) understanding patterns of biodiversity at different geographic and temporal scales 2) explaining the tremendous disparity in the number of species among different taxonomic groups 3) origin and evolution of biodiversity by reconstructing time-calibrated phylogenetic trees to estimate evolutionary processes governing biodiversity assemblages over space and time.	Plant systematics Macroevolutionary approaches with phylogenies	Masters: 5 PhD: 0
	Mr Mudau	Terrestrial Ecology/ Crop Production	Mr Ambani R Mudau is a lecturer in the Department of Life and Consumer Sciences. He holds a Masters in Agricultural Science from University of South Africa. His research focus is on production strategies and postharvest effect on the quality of baby spinach. From Botany perspective, his	 Preharvest and post-harvest conditions on quality of green leafy vegetables Implications caused by processing types i.e. fresh, frozen and canned on the nutritional quality of green leafy vegetables 	Masters: 0 PhD: 0

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			research interests include human disturbance on woodland regeneration community. Methodology expertise: Qualitative and quantitative research	The impact of disturbance [tree (preferably alien species)-cutting] versus resprouting ability on species diversity	
	Ms Tlakula	Medicinal Plant and Conservation Botany	Ms. Pearl K Tlakula is a lecturer in the Department of Life and Consumer Sciences. She holds a Post Graduate Certificate in Higher Education University of Pretoria (UP), Masters in Plant Sciences University of Pretoria (UP) and Honours Bachelor of Science in Botany from University of South Africa (UNISA). Her research focus is on The use of Medicinal by local people, Conservation Ecology and Curriculum and Instructional design in Higher Education. Methodology expertise: Survey and Field Excursion data collection research	Medicinal Plants Conservation Ecology Curriculum and Instructional Design	Masters: 2 PhD: 0
Wildlife Ecology	Prof McIntyre	Vertebrate spatial- and behavioural ecology	Dr McIntyre is a senior lecturer in the Department of Life and Consumer Sciences. His research interests are mostly focussed on the ecology and behaviour of vertebrates. He is particularly interested in behavioural adaptation ("plasticity") and its role in helping animals cope with environmental changes. Methodology expertise: Biologging approaches for studying the movement and behaviours of animals; Camera-trapping for population-level studies.	 Ecology of African clawless otters and other riparian predators Spatial- and behavioural ecology of seals Human-wildlife conflict 	Masters: 1 PhD: 1

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Physiology	Ms Blake	Occupational Hygiene	Lecturer for physiology in the Department of Life & Consumer Sciences. She holds a MSc in Physiology (specializing in Occupational Hygiene). Her research focuses on legislation and exposure limits for chemical carcinogens	 Exploring the link between oxidative stress and the cardiovascular system of pregnant and non-pregnant South African women: The CHAMP study. Exploring The Link between Oxidative Stress, Cardiovascular Parameters and Foetal Birth Weight in South African Women: The CHAMP Study. 	Masters: 2
	Dr Phoswa	Anatomy and Physiology	Dr Phoswa is a Lecturer in the Department of Life and Consumer Sciences. She holds a B.Sc. Medical Science (University of KwaZulu Natal Westville campus), BSc Medical Science Honours (Physiology) (University of KwaZulu Natal Westville campus), M.Med (Physiology) Summa Cum Laude (University of KwaZulu Natal Westville campus), Ph.D. (Medicine) (University of KwaZulu Natal Nelson R Mandela School of Medicine). Her research focuses on Maternal and foetal health as well as hypertensive disorders of pregnancy (Eclampsia, Pre-eclampsia, Gestational hypertension), Gestational diabetes mellitus Diabetes mellitus As well as HIV Infection.	The role of HIV infection in Hypertensive Disorders of Pregnancy	Masters: 0 PhD: 0
	Dr T Magoro	Microbiology and molecular biology	Dr Magoro is a Lecturer in the Department of Life and Consumer Sciences. He holds a Doctoral Degree in Microbiology from the University of Venda. His research focuses on, the role of innate immunity in controlling viral infections and its connection to Cholesterol metabolism	1 Infectious diseases and Innate immunity 2 Type 1 interferons 3 Gene expression	Masters: 2 PhD: 1

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