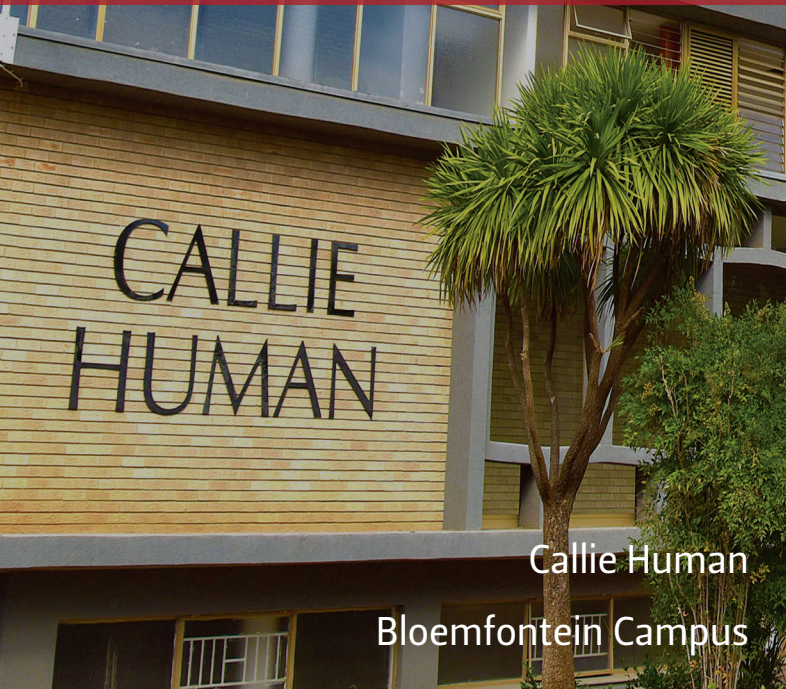


Programme

26 June 2017 | 14:30



Callie Human
Bloemfontein Campus



CONSTITUTION OF THE CONGREGATION

Chancellor

WELCOME AND WORD OF THANKS

Vice-Rector: Research

SPEAKER

Madam Justice Molemela, Acting Justice of the Supreme Court of Appeal and Chancellor of the Central University of Technology

MUSIC ITEM

Charity Leburu and Albertus Engelbrecht will perform *Time to Say Goodbye* by Francesco Sartori

PRESENTATION OF RECIPIENTS OF DEGREES

Dean of the Faculty of Natural and Agricultural Sciences

CONFERMENT OF DEGREES

Chancellor

CONGRATULATORY MESSAGE

Chancellor

NATIONAL ANTHEM OF SOUTH AFRICA

Led by Jani Marais and accompanied by the Graduation Instrumental Ensemble under direction of Anton Esterhuyse

DISSOLUTION OF THE CONGREGATION

Chancellor



UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

National Anthem of South Africa

Nkosi sikelel' iAfrika
Maluphakanyisw' uphondo lwayo,
Yizwa Imithandazo yethu,
Nkosi sikelela, thina lusapho lwayo.

Morena boloka setjhaba sa heso,
O fedise dintwa le matshwenyeho,
O se boloke, O se boloke setjhaba sa heso,
Setjhaba sa South Afrika - South Afrika.

Uit die blou van onse hemel,
Uit die diepte van ons see,
Oor ons ewige gebergtes,
Waar die kranse antwoord gee,

Sounds the call to come together,
And united we shall stand,
Let us live and strive for freedom,
In South Africa our land.



Please note:

Order arrangements during the ceremony:

In order to maintain the dignity of the ceremony, you are requested to take note of the following:

- Please stand as the procession enters the hall.
- Do not move around during the ceremony in order to take photos.
- Please refrain from unacceptable actions such as whistling.
- Please switch off your cell phone.
- We strive to conduct the ceremonies in a dignified manner. Please do not leave the hall before the graduation proceedings have been concluded.

List of candidates receiving degrees, diplomas and certificates

Degrees, diplomas, and certificates of candidates who are unable to attend the graduation ceremony will be conferred in absentia.

An * next to a name indicates that the degree, diploma or certificate is awarded with distinction.

Message from the Rector and Vice-Chancellor



PROF FRANCIS PETERSEN
Rector and Vice-Chancellor

Dear Student

The journey to graduation – like the journey of life – contains many challenges, setbacks, even failures. This often asks for courage, commitment, and no small amount of support from friends, family, supervisors, and strangers.

Today is the culmination of years of studying towards your chosen qualification and one of the most memorable days of your time as a student at the University of the Free State (UFS).

There is nothing more fulfilling than walking across the stage and being capped, knowing that you have achieved what you set out to do in your academic career. Congratulations on this fine achievement.

As a university recognised for academic excellence and quality education, we are proud to confer this degree upon you during a time when the entire South African higher-education sector is experiencing exceptional challenges. As a university, we are committed to respond to those challenges in a manner that is not only fair and just, but will assist in strengthening this sector for the betterment of the country.

The university takes pride in you as our graduate and we hope that you are equally pleased to join a special community of alumni that is 113 years old, and that you will keep in touch with the UFS. With this shared sense of achievement, it is hoped that you had a challenging and enriching learning experience at Kovsies; that you learnt about confidence, the ability to express your opinions, the value of human dignity, and the significance of democracy. The UFS is, after all, a place that inspires excellence and transforms lives.



UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

CALLIE HUMAN Graduation Ceremony 2017

HONORARY AWARDS | HONORARY DOCTORATES

1950	GLP Moerdyk – D Litt (h c)	GG Cillié – D Phil (h c)	2004	S Badat – D Phil (h c)
1951	NC Havenga – LLD (h c)	SPD le Roux – D Litt (h c)		R Bringle – D Phil (h c)
1952	Thos Blok – DEd (h c)	A Polson – D Phil Med (h c)		J de Wet – DMus (h c)
	SHS Rubidge – DSc (h c)	J du P Scholtz – D Phil (h c)		CF Fauconnier – DSc (h c)
1955	CR Swart – LLD (h c)	S Grové – DMus (h c)		GJ Gerwel – D Phil (h c)
	CA v Niekerk – LLD (h c)	FP Retief – DMed (h c)		WD Jonker – DTh (h c)
1958	CPB Brink – LLD (h c)	JA Stegmann – DCom (h c)		A Krog – D Litt (h c)
	CF Visser – DEd (h c)	WA Joubert – LLD (h c)		K Mokhele – D Phil (h c)
1959	DB Bosman – D Litt (h c)	B Kok – D Phil (h c)		CJC Nel (Postuum) – PhD (h c)
	SP le Roux – DSc Agric (h c)	WP Venter – DCom (h c)		L Quayle – DMus (h c)
	DF Malherbe – D Litt (h c)	JJN Cloete – DAdmin (h c)		T (Karel) Schoeman – D Litt (h c)
	GH v Rooyen – MA (h c)	FC Fensham – D Litt (h c)		YK Seedat – DMed (h c)
1960	SPE Boshoff – D Litt (h c)	JW vd Riet – D Phil (h c)		MK Seely – DSc (h c)
1961	T Boydell – D Phil (h c)			C Seerveld – D Phil (h c)
1962	ES Botes – DEd (h c)	1989	BJ Meyer – DSc (h c)	F van Z Slabbert – D Phil (h c)
	PE Rousseau – DSc (h c)		N van Uden – PhD (h c)	JC Steyn – D Litt (h c)
1963	EH Louw – LLD (h c)	1990	MG Corbett – LLD (h c)	PA Verhoef – DTh (h c)
	EN Roberts – DSc (h c)		JS Rabie – D Litt (h c)	L van den Heever – LLD (h c)
	JGF (Kaalkop) vd Merwe – DCom (h c)	1991	SS Brand – DCom (h c)	HA Wessels – LLD (h c)
	HF Verwoerd – D Litt et Phil (h c)		JWL de Villiers – DSc (h c)	2005
1966	PSZ Coetzee – D Phil Th (h c)		GT Fagan – DArch (h c)	A du P Heyns – DMed (h c)
	PJ du Toit – DSc (h c)		JH Hofmeyer – PhD (h c)	JJF Durand – D Phil (h c)
	MS Louw – DCom (h c)		E v Heerden – D Litt (h c)	JA Groenewald – DSc (h c)
1967	SM Naudé – DSc (h c)	1992	JP Louw – D Litt (h c)	WH Neuser – DTh (h c)
	LC Steyn – LLD (h c)		H Olivier – DSc (h c)	M Ramos – PhD (h c)
	BJ Vorster – LLD (h c)	1993	JD Anderson – DMed (h c)	SJ Terreblanche – DCom (h c)
1968	SJ Naudé – DCom (h c)		RR Arndt – DSc (h c)	2006
1969	CW (Nellie) Swart – D Phil (h c)		SJ Naudé – LLD (h c)	T Moss – PhD (h c)
	AJJ Wessels – DCom (h c)	1994	JJ Human – D Phil (h c)	PV Cox – PhD (h c)
	GS Nienaber – D Litt (h c)		JA Myburgh – DMed (h c)	2007
1970	HO Mönning – DSc (h c)		JP vd Walt – DSc (h c)	BJ (Bannie) Britz – DArch (h c)
	N Diederichs – DCom (h c)	1995	WA Landman – DEd (h c)	KPD Maphalla – PhD (h c)
	RS Verster – D Phil (h c)		WL Mouton – D Phil (h c)	2008
1972	LW Hiemstra – D Phil (h c)	1996	WDO Marasas – D Sc (h c)	D Ferreira – DSc (h c)
	PJ Meyer – D Phil (h c)		NE Wiehahn – LLD (h c)	2009
	PJ Nienaber – D Litt (h c)	1997	AP Brink – D Litt (h c)	JC Loock – PhD (h c)
1975	De la H de Villiers – DSc Agric (h c)		B Hurwitz – D Phil (h c)	LTC Harms – LLD (h c)
	GJ Stander – DSc (h c)	1998	FC Müller – D Med (h c)	2010
1976	AJA Roux – DSc (h c)	1999	FM Claerhout – D Phil (h c)	P Gordhan – PhD (h c)
1978	SP Botha – DSc (h c)		JJF Hefer – LLD (h c)	BBS Ngubane – PhD (h c)
	EM van Zinderen Bakker – DSc (h c)		S Nigam – DSc (h c)	AH Strydom – PhD (h c)
	HB Thom – DEd (h c)		WL Nkuhlu – DCom (h c)	M Jones – PhD (h c)
1979	FCL Bosman – D Phil (h c)		MA Ramphele – D Phil (h c)	2011
	G Cronjé – DSoc Sc (h c)		HJO van Heerden – LLD (h c)	D Tutu – DTh (h c)
	CJF Human – DCom (h c)		FJ van der Merwe – PhD (h c)	P Fourie – D Litt (h c)
1980	G Boonzaier – D Phil (h c)	2000	MH Daling – DCom (h c)	OG Winfrey – DEd (h c)
1981	PW Botha – D Phil (h c)		TN Liversedge – PhD (h c)	RWM Frater – PhD (h c)
	B Human – DCom (h c)		I Mahomed – LLD (h c)	A Sawyer – DEd (h c)
	SG Shuttleworth – DSc (h c)	2001	BP Gilbertson – DCom (h c)	2012
1982	BLS Franklin – D Phil (h c)		NR Mandela – LLD (h c)	RJ Goldstone – LLD (h c)
	GvN Viljoen – DEd (h c)		EC Taglauer – DSc (h c)	ER v Heerden – D Litt (h c)
1983	L Luyt – DCom (h c)	2002	BH Meyer – PhD (h c)	M Nussbaum – D Litt (h c)
	SF Zaaiman – D Phil (h c)		BAK Rider – LLD (h c)	OW Prozesky – MD (h c)
1984	HS Steyn – DSc (h c)		CF Slabber – PhD (h c)	FDJ Brand – LLD (h c)
	FR Tomlinson – DSc Agric (h c)	2003	JM Stetar – DEd (h c)	2013
	JH vd Berg – DMed (h c)		EWA de Corte – DEd (h c)	ZKG Mda – D Litt (h c)
1985	L Alberts – DSc (h c)		HA Serebro – D Phil (h c)	2014
			AG Sykes – DSc (h c)	ML Blum – PhD (h c)
				L Mulvey – D Litt (h c)
				2015
				L Brahimi – D Phil (h c)
				JM Samuel – DEd (h c)
				MA Oduyoye – DTh (h c)
				JD Sacks – DEd (h c)
				2016
				RJ Khoza – D Econ (h c)
				TA Manuel – D Econ (h c)
				M du Preez – PhD (h c)
				J Samoff – D Phil (h c)
				F Haffajee – PhD (h c)

SHIELDS OF HONOUR, COUNCIL AND CHANCELLOR'S MEDALS

1994	Prof FO Müller (Shield of Honour)	2001	Prof PC Potgieter (Chancellor's Medal)
	RE Schoombie (Shield of Honour)	2002	T Moss (Shield of Honour)
1995	Prof FO Müller (Chancellor's Medal)		Prof CD Roode (Chancellor's Medal)
	RE Schoombie (Chancellor's Medal)	2003	Prof HC Janse van Rensburg (Council's Medal)
1996	Prof S Mittman (Shield of Honour)		Prof SA Petersen (Shield of Honour)
1997	Prof M Jansens (Shield of Honour)	2008	Ludo Helsen (Shield of Honour)
1998	Prof CJC Nel (Chancellor's Medal)	2009	Prof JU Grobbelaar (Council's Medal)
	Prof C Swanepoel (Chancellor's Medal)	2010	Mrs AM Dippenaar (Chancellor's Medal)
1999	WJ (Hansie) Cronje (Shield of Honour)	2014	Dr H Verster (Chancellor's Medal)
	Prof David Justice (Shield of Honour)	2014	Mr JL Pretorius (Chancellor's Medal)
2000	Prof P Rosseel (Shield of Honour)	2016	Mr AD Osler (Chancellor's Medal)
	Prof MJ Viljoen (Chancellor's Medal)		Ms M van der Merwe – (Chancellor's Medal)



DR K MOKHELE
PhD (UCD, USA)
CHANCELLOR



MR W LOUW
MEng (CIVIL)(SU)
CHAIR OF THE COUNCIL



PROF F PETERSEN
PhD (SU)
RECTOR AND VICE-CHANCELLOR



PROF ML LANGE
PhD (Wits)
VICE-RECTOR: ACADEMIC



PROF NI MORGAN
MSc (Cornell)
VICE-RECTOR: OPERATIONS



PROF P NAIDOO
PhD (VISTA)
PRINCIPAL: QWAQWA CAMPUS



PROF RC WITTHUHN
PhD (UFS)
VICE-RECTOR: RESEARCH



PROF D COETZEE
PhD (UFS)
PRINCIPAL: SOUTH CAMPUS



DR MJG VINGER
PhD (UJ)
REGISTRAR: GOVERNANCE AND POLICY



DR K LAZENBY
PhD (UP)
REGISTRAR: SYSTEMS AND
ADMINISTRATION



PROF JU GROBBELAAR
DSc (UFS)
PRESIDENT OF THE CONVOCATION



PROF HJ KROUKAMP
DPhil (UPE)
DEAN



ECONOMIC AND
MANAGEMENT SCIENCES
EKONOMIESE EN
BESTUURSWETENSAPPE
UFS·UV



PROF LC JITA
PhD (MSU)
ACTING DEAN



EDUCATION
OPVOEDKUNDE
UFS·UV



PROF GJ VAN ZYL
PhD (UFS)
DEAN



HEALTH SCIENCES
GESONDHEIDSWETENSAPPE
UFS·UV



PROF M RIVERA
PhD (FLORIDA)
ACTING DEAN



HUMANITIES
GEESTESWETENSAPPE
UFS·UV



PROF CMA NICHOLSON
LLD (UNISA)
DEAN



LAW
REGSGELEERDHEID
UFS·UV



PROF R PEACOCK
PhD (UP)
ACTING DEAN



HUMANITIES
GEESTESWETENSAPPE
UFS·UV



PROF SD SNYMAN
DD (PRET)
DEAN



THEOLOGY
TEOLOGIE
UFS·UV



PROF PD VERMEULEN
PhD (UFS)
DEAN



NATURAL AND
AGRICULTURAL SCIENCES
NATUUR- EN
LANDBOUWETENSAPPE
UFS·UV

DOCTORAL DEGREES

DOCTOR OF PHILOSOPHY (with specialisation in Geohydrology) AHOKPOSSI, Dehouegnon Pacome

Mr Ahokpossi has over 13 years of experience in conducting and auditing water-related projects, contaminated land studies, and due diligence auditing of aspects related to SHE. He has worked in South Africa, Cameroon, Cote D'Ivoire, Nigeria, and the Republic of Benin. Mr Ahokpossi was born in Lomé, Togo on 29 April 1981. He completed his secondary education at the College Mgr Steinmetz in Abomey, Benin; and was accepted at the University of Abomey Calavi as Civil Engineering student in 2000, where he obtained the degree BSc with distinction in 2004. He also graduated at the University of the Free State with an MSc in Geohydrology in 2011. He is married to Corine Gillette and the couple has one son and two daughters.

With his thesis, **QUANTIFICATION AND MODELLING OF HETEROGENEITIES IN AQUIFERS**, the candidate makes a contribution to geohydrological characterisation and modelling. Three manuscripts from this thesis have been submitted to top-tier journals in the Natural and Applied Sciences. The most recent concept of differentiation based on the non-local and non-singular kernel called the generalised Mittag-Leffler function, was employed to reshape the model of fractured aquifer fractal flow. The solution was successfully applied to experimental data collected from four different constant discharge tests. Additionally, a new analytical solution to the fractal flow in a dual medium was proposed. The existing dual media fractal flow model was modified by replacing the local derivative with the non-local operator. From a case study, a methodical level for quantifying and modelling heterogeneity in an aquifer was deduced. The capability of selected numerical geohydrological software was assessed, using spatial variability of hydraulic conductivity and recharge. Focus was also placed on hydro-geochemical characterisation and hydro-geochemical modelling.

PROMOTER: Prof A Atangana
CO-PROMOTER: Prof PD Vermeulen

DOCTOR OF PHILOSOPHY (with specialisation in Environmental Management) BELLE, Johannes Amate

Johannes Amate Belle was born in Ebanut-Bangem on 21 May 1964. He matriculated at the Government High School Wum in 1984. He obtained his BA in Geography with Education in 1989 at the University of Yaounde, his Honours in Geography in 2002 at UNISA, and a master's in Disaster Management at the UFS in 2009. He started his career in 1989 as educator in Kumba, Cameroon, and moved to Lesotho in 1998, where he taught at the Sofia English Medium School and at the Holy Names High School, Bela-Bela, from 1998 to March 2010. He was appointed as lecturer at UFS-DiMTEC from April 2010. He is married to Gladys Belle and the couple has two sons and two daughters.

With his thesis, **THE INTEGRATION OF DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION STRATEGIES INTO WETLANDS MANAGEMENT IN THE EASTERN FREE STATE, SOUTH AFRICA**, the candidate used a systems-thinking approach to address wetland problems in the eastern Free State. The study makes two fundamental contributions to the new and internationally embraced ecosystem-based disaster risk reduction and climate change adaptation. First, the study examined the vulnerability of wetlands and proposed a national wetland policy for South Africa to guide wetland management. Secondly, the study developed a holistic and integrated wetland management framework which promotes wetland resilience to extreme weather risks and the negative impacts of climate change. This work has been presented at four international conferences, three national conferences, and three local workshops (Indonesia, Germany, the Netherlands, the USA, and South Africa). Four draft articles have been sent to internationally accredited peer-review journals and are currently under review.

PROMOTER: Dr NB Collins
CO-PROMOTER: Prof AJ Jordaan

DOCTOR OF PHILOSOPHY (with specialisation in Geography) CHITONGO, Leonard

Leonard Chitongo was born on 2 January 1982 in Gweru, a town in the Midlands Province of Zimbabwe. He received his secondary education in Marondera district, Mashonaland East, where he matriculated at Waddiloe High School in 2000. He obtained a Bachelor's degree in Geography and Geology in 2005, a Postgraduate Diploma in Project Planning and Management in 2008, and a Master of Science degree in Rural and Urban Planning in 2010. All these qualifications were obtained from the University of Zimbabwe. He went further to do a special honours degree in Urban Development Studies at Lupane State University, which he completed in 2015. Leonard completed his PhD in Geography at the Qwaqwa Campus. He started his academic career as a Graduate Teaching Assistant at the University of Zimbabwe in 2009. In 2011, he transferred to the Great Zimbabwe University, where he was appointed as permanent full-time lecturer in the Department of Rural and Urban Development. He is married to Chipso and the couple has three sons.

With his thesis, **THE EFFICACY OF SMALLHOLDER TOBACCO FARMERS TO RURAL DEVELOPMENT IN ZIMBABWE**, the candidate makes a contribution to a subject which is already under the spotlight. The study is based on a comparative analysis of the socio-economic contribution of tobacco farming in a dynamic environment. Informed by both the positivist and constructivist paradigms, the study applies the Sustainable Livelihood Framework and Entitlement Approach to assess the contribution of smallholder tobacco farming to rural development in Zimbabwe. The research concludes that tobacco farming has an enormous potential to reduce rural poverty. The study recommends an increase in government-funded extension services, capitalisation, as well as energy supply and infrastructural development programmes. With this contribution, the candidate provides policy recommendations that could enhance smallholder tobacco farming as an alternative strategy for poverty reduction in rural Zimbabwe.

PROMOTER: Prof G Mukwada

DOCTOR OF PHILOSOPHY (with specialisation in Sustainable Agriculture)
DAGADA, Maanda Caiphus

Maanda Caiphus Dagada was born in Thohoyandou, Limpopo Province, in 1969. In 1987, he matriculated from Guvhukuvhu Secondary School. He obtained a Bachelor of Arts degree in 1992 from the University of Venda. In 1994, he obtained a University Education Diploma and was subsequently awarded a master's in Rural Development from the same institution in 2004. He began his career as a school teacher in 1994. In 2002, he was appointed as an Outreach Officer at the University of Venda, where his love for research in agriculture and rural development was nurtured. In 2004, Maanda was appointed as a manager by a Finland-based company, Terra Consulting. Here, he was responsible for agricultural infrastructural development. In 2006, he was appointed as the Deputy Director for the Limpopo Department of Agriculture, where he oversaw land and agrarian projects. Following this, he was appointed as a Director in the Mpumalanga Department of Agriculture in 2011. Currently, he is the Acting Chief Director in the same department, leading a provincial team to facilitate Integrated Rural Development. He is married to Adziliwi Dagada and is blessed with three daughters.

With his doctoral thesis, **SOCIO-ECONOMIC IMPACT OF AGRICULTURAL AND AGRO-PROCESSING CO-OPERATIVES ON FOOD SECURITY AND INCOMES IN LIMPOPO PROVINCE, SOUTH AFRICA**, the candidate has contributed towards new knowledge on the agricultural and agro-processing cooperatives, and the role that they play in alleviating poverty in rural areas. He has demonstrated that rural farming systems are dependent on rural institutions, such as cooperatives, for their livelihood, since they are central to the supply of farming inputs, farming tillage, marketing, product value adding, and the provision of much needed finances. Furthermore, the candidate made three important findings. Firstly, he clearly demonstrated that there are different factors that influence the sustainability and functionality of cooperatives, including socio-economic, legal, and technological factors. Secondly, he indicated that cooperatives' power and function could be enhanced through strong linkages with extension services. His third finding suggested that the efficiency and effectiveness of marketing could be improved upon through the cooperative movement, especially in informal markets. Based on the results of this study, factors which could assist in creating a New Generation Cooperative Development Model for Smallholder Farmers were outlined. In addition, three proceeding papers and two peer-review papers have been published from this thesis.

PROMOTER: Prof AE Nesamvuni
CO-PROMOTER: Prof A Stroebel
CO-PROMOTER: Prof CJ van Rooyen

DOCTOR OF PHILOSOPHY (with specialisation in Entomology)
DE BEER, Chantel Janet

Chantel Janet de Beer was born in Newcastle on 30 September 1982. She received her secondary education in Bloemfontein, where she matriculated at the Fichardt Park High School in 2000. She obtained the degree BSc (Zoology/Entomology) in 2003 and BScHons (Entomology) in 2004 at the University of the Free State, and the degree MSc (Veterinary Sciences) in 2009 at the University of Pretoria. She started her career as a Junior Researcher at the ARC-OVI in Pretoria in 2006. Since 2010, she is a Researcher at the ARC-OVI. She is married to Henry van der Westhuizen and the couple has one daughter, Minke.

In her thesis, **MATING BEHAVIOUR AND COMPETITIVENESS OF MALE GLOSSINA BREVIPALPIS AND GLOSSINA AUSTENI IN RELATION TO BIOLOGICAL AND OPERATIONAL ATTRIBUTES FOR USE IN THE STERILE INSECT TECHNIQUE**, she determines the status of tsetse and trypanosomiasis distribution in South Africa. With morphometrical analyses, she succeeds in showing an absence of gene flow between the South African population and those in southern Mozambique and Swaziland. The optimal diets for laboratory colonies and irradiation doses necessary to adequately sterilise the males of these two species while ensuring that they are still competitive with fertile males were determined. This work will contribute to the sustainable control of nagana in north-eastern KwaZulu-Natal and will stimulate economic development in this largely underdeveloped area.

PROMOTER: Dr GJ Venter
CO-PROMOTER: Dr MJB Vreysen
CO-PROMOTER: Dr SL Brink

DOCTOR OF PHILOSOPHY (with specialisation in Mathematics)
DE KLERK, Ben-Eben

Ben-Eben de Klerk was born in Bloemfontein on 8 January 1990. He received his secondary education in Bethlehem, where he matriculated at Witteberg High School in 2008, after which he commenced his studies at the University of the Free State. He obtained the BSc degree in Physics in 2012, the BScHons in Mathematics in 2013, and the master's degree in Mathematics in 2014, all with distinction. He started his career in 2012 at the University of the Free State, where he is currently a lecturer in the Department of Mathematics and Applied Mathematics. He is married to Jireh Smit.

With his thesis, **A STRUCTURAL APPROACH TO THE ENDOMORPHISMS OF CERTAIN ABELIAN GROUPS**, the candidate makes a substantial contribution towards the general structure theory of endomorphisms and automorphisms of abelian groups. Results from various other mathematical disciplines, such as finite fields, graph theory, number theory, and cyclotomic polynomials, are utilised to characterise the functional structure of these mappings in terms of cycles and chains. One paper from his work has already been accepted for publication in an international accredited journal, and two others have been submitted.

PROMOTER: Prof JH Meyer

DOCTOR OF PHILOSOPHY (with specialisation in Food Science)
DU TOIT, Alba

Alba du Toit was born in Johannesburg on 20 August 1971. She received her secondary education in Roodepoort, where she matriculated at the Florida High School in 1989. She obtained the degree B Home Economics in 1993, BScHons Home Economics in 2010, the degree MSc (Home Economics) with distinction in 2012, and the PhD in Consumer Science in 2016 at the University of the Free State. She started her career as Home Economics teacher in Johannesburg in 2003. In 2011, she was appointed in the Department of Consumer Science, and at present she is Junior Lecturer at the University of the Free State. She is married to Charl du Toit and the couple has two sons.

With her thesis, **SELECTION, EXTRACTION, CHARACTERISATION AND APPLICATION OF MUCILAGE FROM CACTUS PEAR (*OPUNTIA FICUS-INDICA* AND *OPUNTIA ROBUSTA*) CLADODES**, the candidate makes a substantial contribution to cactus pear research in South Africa and indeed internationally. Her research fundamentally broadens the knowledge base in terms of functionality of an underutilised, multi-functional crop. Her comprehensive investigation of our 42 cultivars identified those cultivars of which an ideal mucilage characteristics profile could be compiled. These cultivars would then be most suitable as functional ingredient in food products. An international patent on an inexpensive and simple mucilage extraction method was subsequently registered. The candidate provided meaningful research appropriate to the acquisition of a PhD degree and was subsequently honoured as best presentation at the IXth International Cactus Pear and Cochineal Congress held in Chile in March 2017. Her contribution led to three manuscripts accepted so far and another two in process to be submitted to acclaimed international journals.

PROMOTER: Dr M de Wit
CO-PROMOTER: Prof A Hugo
CO-PROMOTER: Dr HJ Fouché

DOCTOR OF PHILOSOPHY (with specialisation in Agricultural Economics)
HAILE, Berhane Okubay

Berhane Okubay Haile was born in Asmara on 14 July 1968. He received his secondary education in Addis Ababa, where he matriculated at the Ayer Tena High School in 1990. He obtained the degree Soil and Water Engineering in 1997, an Honours in Agricultural Economics in 2002, and the degree MSc in Agricultural Economics (with distinction) in 2003. He started his career as Irrigation Engineer in Keren (Eritrea) in 1998. In 2003, he was appointed in the Department of Agricultural Economics as assistant researcher, and at present he is a Lecturer at the University of Asmara. He is married to Meley Jacob and the couple has three daughters.

With his thesis, **AN ECONOMIC ANALYSIS OF SALINITY MANAGEMENT WITH EVOLUTIONARY ALGORITHMS IN VAALHARTS**, the candidate makes a contribution to the field of irrigation salinisation economics. The student expanded the Soil Water Management Programme (SWAMP) to include a comprehensive economic dimension that involves a novel risk-modelling technique to capture uncertainty. With this contribution, he provides new insight into the trade-offs between on-farm irrigation and salinity-management decisions versus the social good (impact on the environment). This research uses evidence-based facts to contribute to the non-point-source pollution debate and pending legislation.

PROMOTER: Prof B Grové
CO-PROMOTER: Dr N Matthews
CO-PROMOTER: Dr JH Barnard

DOCTOR OF PHILOSOPHY (with specialisation in Plant Breeding)
KAPINGA, Fortunus Anton

Fortunus Anton Kapinga was born in the Mbinga district of Tanzania on 2 August 1962. He graduated his ordinary-level secondary education in Kigurunyembe Secondary School in 1984 in the Morogoro region, and advanced-level secondary education in Moshi High School in the Kilimanjaro region in Tanzania in 1987. He obtained his BSc (Agriculture General) in 2004 and MSc (Crop Science) in 2009 from the Sokoine University of Agriculture, Tanzania. He started his career as an Agricultural Field Officer. Currently, he is a Principal Agricultural Research Officer in Tanzania's Ministry of Agriculture Livestock and Fisheries. He is married to Aneth Chale and the couple has a son (Anton) and a daughter (Bernadina).

With his thesis, **DEVELOPMENT OF NEW TOOLS FOR CASSAVA BROWN STREAK DISEASE RESISTANCE BREEDING**, the candidate makes a valuable contribution to the scientific knowledge of cassava as an important staple crop in Africa. He investigated an alternative phenotyping and identified quantitative trait loci (QTL) associated with tolerance to CBSD, cassava mosaic disease, and cassava green mites. His study revealed correlations between CBSD physical symptoms and virus load. The results of this investigation will be used to improve breeding, including molecular breeding, particularly for cassava brown streak disease resistance.

PROMOTER: Prof L Herselman
CO-PROMOTER: Prof MT Labuschagne
CO-PROMOTER: Dr M Ferguson

DOCTOR OF PHILOSOPHY (with specialisation in Genetics)
KEMP, Lucy Valeska

Lucy Kemp was born in Pretoria on 26 May 1977. She matriculated in Pretoria at Willowridge High School in 1994. She obtained the following degrees: BSc Zoology in 1999; Zoology Honours in 2000; and MSc (Applied Marine Science) cum laude in 2006, at the University of Cape Town. She worked

in the Kruger National Park managing the wild dog and cheetah census in 2004, managed an ecotourism company in Cape Town in 2006, ran a conservation biology programme in Namibia from 2007 to 2010, focusing on black rhino and sustainable high-value plant trade, and worked as an environmental consultant on projects ranging from sustainable sanitation to community-based conservation. She also manages the Mabula Ground Hornbill Project since 2012.

With her thesis, **CONSERVATION BIOLOGY AND MOLECULAR ECOLOGY OF THE SOUTHERN GROUND-HORNBILL (BURCORVUS LEADBEATERI)**, the candidate makes a significant contribution to the conservation of this endangered bird by providing the first holistic analysis of the species. Aspects that were studied include distribution, conservation status, ecological niche and re-introductions; followed by a comprehensive study of genetic diversity and differentiation in the species across its entire sub-Saharan range. Results from the genetic analysis revealed that the species is essentially panmictic, but isolation by distance leads to some differentiation in extremes of the range; the species shows no inbreeding; dispersal distances may be greater than previously thought; females are the primary dispersers; and genetic diversity in the South African captive population is representative of the full depth of wild diversity. The results from genetic analyses, combined with an assessment of the validity of using reintroductions as a conservation tool, will support the planning of conservation actions, both in- and ex-situ.

PROMOTER: Prof JP Grobler
CO-PROMOTER: Prof D Dalton
CO-PROMOTER: Prof A Kotze
CO-PROMOTER: Prof R Jansen

DOCTOR OF PHILOSOPHY (with specialisation in Food Science)
MADENDE, Moses

Moses Madende was born in 1987 in Gweru, Zimbabwe, the seventh of eight siblings. He attended secondary school at Ascot High School in Gweru from 2001 to 2004, and received advanced-level schooling at Thornhill High School from 2005 to 2006. It was at the latter where his interest in science and his desire to become a researcher developed, and where his teachers informed him about the importance of science in food. At the University of the Free State, the degrees BSc and BScHons were obtained cum laude, followed by the MSc in 2013.

Internationally, the quest to understand the structure of the milk casein micelle is ongoing. This knowledge is important in the fields of food technology and nutrition. The research is currently widened to other species, specifically those that consist of different ratios of the four casein proteins, or display absence of some casein protein types. Milk of goats, horses, and humans fulfil some of these criteria. In his MSc studies, the candidate has discovered that the African elephant should be added to the subjects, as the casein micelles of this species consists of only two of the four casein proteins. With the thesis, **ELUCIDATION OF AFRICAN ELEPHANT BETA CASEIN PHOSPHORYLATION STATE AND CASEIN MICELLE STRUCTURE**, the candidate showed that the casein micelles of African elephant are larger than any other species, and that the beta casein is phosphorylated at one site only, instead of four to seven sites. The information not only contributes to new thought on the casein micelle structure, but also contributes to knowledge of the evolutionary development of milk.

PROMOTER: Prof G Osthoff
CO-PROMOTER: Dr G Kemp

DOCTOR OF PHILOSOPHY (with specialisation in Chemistry)
MANICUM, Amanda-Lee Ezra

Amanda-Lee Manicum (née Volmink) was born in King William's Town on 12 January 1983. She received her secondary education in King William's Town, where she matriculated at the De Vos Malan High School in 2000. She obtained the degree BSc (Chemistry, Physics, and Biology) in 2009, BScHons Chemistry in 2010, and Chemistry with distinction in 2012 at the University of the Free State. She started her career in 2013 as lecturer in Bloemfontein in the Department of Chemistry, and at present she is a lecturer at Tshwane University of Technology. She is married to Rudolph Manicum and the couple has one daughter, Anyah.

With her thesis, **A SOLID STATE AND MECHANISTIC STUDY OF CARBONYL ACTIVATION IN RHENIUM (I) COMPLEXES AS RADIOPHARMACEUTICAL MODELS**, the candidate makes an important contribution to the field of radiopharmaceutical design, with a focus on the diagnosis and treatment of cancer, one of the most life-threatening diseases of our time. This work includes the successful synthesis, kinetic formation studies and characterisation of a wide range of rhenium(I)-dicarbonyl compounds. The displacement of a carbonyl ligand by various water-soluble phosphines was one of the many highlights of this work, and these research findings will be further evaluated for use in the radiopharmaceutical field.

PROMOTER: Prof HG Visser
CO-PROMOTER: Dr M Schutte-Smith

DOCTOR OF PHILOSOPHY (with specialisation in Mathematics)
MARITZ, Elizabeth Cornelia Martina

Elizabeth Cornelia Martina Maritz was born on 24 January 1986 in Bloemfontein. She matriculated in Bloemfontein at Damelin College in 2005. She obtained a BA degree in Latin, Mathematics, and Philosophy in 2009 with distinction, a BSc Honours degree in Mathematics in 2012 with distinction,

and an MSc degree in Mathematics in 2014, also with distinction. She received many awards during her studies. Elizabeth started her career as a research assistant in the Department of Classical Languages at the UFS in 2008, and was a part-time lecturer in the Department of Mathematics and Applied Mathematics at the UFS from 2010 until 2016. Elizabeth is currently a small-business owner and entrepreneur, and is married to Jacques. With her thesis, **GENERALISED COLOURINGS AND THE PARTITION DIMENSION OF GRAPHS**, the candidate investigates colourings of graphs from different perspectives. Her research is mainly twofold; she first studies generalised (edge) colourings with forbidden subgraphs for various classes of graphs and hereditary graph properties. In this section she proves significant results, using particularly difficult techniques (like the Lovász Local Lemma) and improves on known published results. This work has been published in an ISI journal in 2017. Secondly, she studies generalisations of the metric dimension of graphs, in particular the metric chromatic number and the partition dimension of graphs focusing on circulant graphs (both directed and undirected) with an arbitrary number of generators. The latter research makes a significant contribution to the topic of partition dimension of graphs. The candidate uses rigorous computer algorithms to find upper bounds for the parameter and lower bounds are proved by difficult case analysis. This work has also been submitted for publication.

PROMOTER: Dr S Dorfling
CO-PROMOTER: Prof T Vetric

DOCTOR OF PHILOSOPHY (with specialisation in Environmental Management)
MURYE, Alfred Francis

Alfred Murye was born in the town of Kajokeji in South Sudan on 1 January 1968. He received his secondary education in Juba, where he obtained the Sudan School Certificate at the Mundri Senior Secondary School in 1988. He obtained a BSc in Applied Environmental Science and Biology in 1994, and a master's in Environmental Management in 1999. He started his career as a lecturer at the University of Swaziland in 2001, and currently he is a senior lecturer in the Department of Environmental Health Science at the University of Swaziland. He is married to Rejoice Juan and the couple has one son and three daughters.

With his thesis, **ENVIRONMENTAL AND SOCIO-ECONOMIC SUSTAINABILITY OF MARULA HARVESTING IN THE LUBOMBO REGION, SWAZILAND**, the candidate makes an important contribution to our understanding of the role that marula plays in the livelihoods of, and poverty alleviation among, the rural population in Swaziland. Prior to this study, limited information existed on the socio-economic contribution of the harvesting and use of marula to rural livelihoods in Southern Africa. The current level of commercialised harvesting of marula in Swaziland has been found unsustainable and holds dire consequences for the quality of life of those who depend on the resource. The results of this investigation serve as a timely warning of the socio-economic, cultural, and environmental consequences that might set in as a result of insufficient policy and legal frameworks for the protection of marula harvesting. The study recommends several practical and policy interventions to address current levels of overharvesting and to facilitate means of sustaining the marula fruit for future availability in Swaziland.

PROMOTER: Prof AJ Pelser
CO-PROMOTER: Dr PC Zietsman

DOCTOR OF PHILOSOPHY (with specialisation in Microbiology)
OGUNDEJI, Adepem Olawunmi

Adepem Olawunmi Ogundeji was born at Ile-Ife, Osun State, Nigeria, on 3 September 1980. She received her secondary education in Nigeria, where she matriculated at the Anglican Secondary School, Ile-Ife, in 1997. She obtained the degree BMLSHons in Chemical Pathology at the Ambrose Alli University, Ekpoma, Nigeria, in 2004 and thereafter the degree BMedHons in 2010, and an MSc in Microbiology in 2013 at the University of the Free State. She started her career as a medical laboratory scientist at Federal Medical Center in Abeokuta, Nigeria, in 2005. She is married to Dr Abiodun Ogundeji and the couple has a son and a daughter.

With her thesis, **THE REPURPOSING OF CHEMICAL COMPOUNDS AS ANTI-CRYPTOCOCCUS DRUGS**, the candidate makes a contribution to finding better ways of managing infectious diseases. With this contribution, she attempts to position non-conventional antibiotic drugs as medicines that can control the growth of fungal pathogens, and in particular the growth of *Cryptococcus neoformans* – a pathogen that causes an often-deadly inflammatory condition of the brain in patients living with HIV/AIDS. The results of this investigation serve as an indication of the value that this type of intervention holds for the attempt to find a solution for improving the outcomes of patients that are afflicted by this deadly infection.

PROMOTER: Dr OM Sebolai
CO-PROMOTER: Prof CH Pohl

DOCTOR OF PHILOSOPHY (with specialisation in Chemistry)
PEENS, Frederick Hermanus

Frederick Peens was born in Bloemfontein on 30 March 1989. He received his secondary education in Bloemfontein, where he matriculated at Jim Fouché High School in 2007. He obtained the degree BSc (Chemistry) in 2011, BSc Chemistry Hons in 2012, the degree MSc Chemistry in 2014 and the PhD in Chemistry in 2017 at the University of the Free State. He started his career as an Active Pharmaceutical Ingredients Operator in White River in 2017. He is married to Roné Peens and the couple has one daughter.

With his thesis, **ENCAPSULATION OF SELECTED METALLATED PHTHALOCYANINES IN ALUMINIUM AMINOTEREPHTHALATE FRAMEWORK, NH₂-MIL-101(AI), WITH HETEROGENEOUS CATALYTIC AND HYDROGEN STORAGE APPLICATIONS**, the candidate greatly improved the

synthesis procedure of the framework material. Due to his improvements, the material can now be produced in greater quantities and with better physical properties. He developed a method to successfully encapsulate metallo-phthalocyanines in the pores of the framework material under mild conditions. He subsequently demonstrated that the encapsulated phthalocyanines are still catalytically and electrochemically active. He showed that these types of porous framework materials can be used as carriers for bulky catalyst molecules and other large organic and organometallic molecules. His contribution paved the way towards the use of MIL-101 frameworks as substrates in applications such as heterogeneous catalysis, drug delivery, and organic solar cells.

PROMOTER: Dr EHG Langner

DOCTOR OF PHILOSOPHY (with specialisation in Chemistry)
PIETERSE, Tanya

Tanya Pieterse was born in Bloemfontein on 12 November 1987. She received her secondary education in Bloemfontein, where she matriculated at Jim Fouché High School in 2006. She obtained the BSc degree (Chemistry and Microbiology) with distinction in 2009, BScHons (Chemistry) with distinction in 2010, and the MSc degree (Organic Chemistry) also with distinction in 2013, all at the University of the Free State. She started her career as lecturer in the Department of Chemistry at the UFS in 2013. In 2015, she was appointed at the pharmaceutical company, Chemical Process Technologies, in Pretoria, and at present she is a quantitative analyst at the First Rand Group in Johannesburg. She is engaged to David du Toit.

With her thesis, **NEW RING CLOSING METATHESIS BASED METHODOLOGY FOR THE SYNTHESIS OF MONOMERIC FLAVONOIDS**, the candidate makes an important contribution to the field of metal-catalysed synthesis of flavonoids. In this regard, she developed a general highly efficient protocol based on olefin metathesis, a field of study for which the Nobel Prize in Chemistry was awarded in 2005, for the synthesis of all three classes of monomeric flavonoids. In her thesis, the candidate also developed an elegant Lewis acid-based method for the direct transformation of activated ketones into alkenes, utilising Grignard reagents. The quality of her contribution in this regard is emphasised by the fact that these results have already been published as a letter in one of the leading international scientific journals, while the rest of her work will definitely give rise to at least three more papers in similar journals. The candidate's work will also lead to flavonoid compounds becoming more readily available for testing as potential drugs in medical applications.

PROMOTER: Prof BCB Bezuidenhout
CO-PROMOTER: Dr C Marais

DOCTOR OF PHILOSOPHY (with specialisation in Biochemistry)
SABIU, Saheed

Saheed Sabiu was born in Nigeria on 7 July 1984. He received his secondary education in Nigeria, where he matriculated at Cherubim and Seraphim College in 2000. He obtained the BScHons and MSc degrees in Biochemistry in 2004 and 2012 with second class upper division at the University of Ilorin and Bayero University Kano, Nigeria, and his PhD in Biochemistry in 2017 at the University of the Free State, where he emerged as the overall winner of the 2016 Three-Minute Thesis Competition and was the first runner-up at the National Competition. He started his career as a lecturer in Nigeria in 2013, and was a facilitator and lecturer during his PhD programme in the Department of Plant Sciences, UFS. He is married to Hassana Abduraheem and the couple has three daughters.

With his thesis, **BIOCHEMICAL AND PHARMACOLOGICAL POTENTIAL OF ZEA MAYS L. (POACEAE), STIGMA MAYDIS ON ACETAMINOPHEN-MEDIATED OXIDATIVE NEPHROPATHY: IN VITRO AND IN VIVO ASSESSMENTS**, the candidate makes a contribution to medicinal potential of maize inflorescence. Using different in-vitro and in-vivo methodologies, the candidate showed that the inflorescence, which is a waste product of maize, has the ability to ameliorate diseases associated with oxidative stress, kidney damage, and diabetic situations. The results of this investigation serve as an indication of the untapped medicinal values of the maize waste that can create huge wealth for the community. The research generated five published articles in high-impact factor peer-review journals, which are available on the internet for the general public consumption.

PROMOTER: Dr AOT Ashafa
CO-PROMOTER: Dr FH O'Neill

DOCTOR OF PHILOSOPHY (with specialisation in Plant Breeding)
SANTCHURN, Deepack

Deepack Santchurn was born in Mauritius on 19 May 1964, where he did his primary and secondary schooling. He obtained his BSc and BScHons degrees in Crop Science and Production from the University of Mauritius, and immediately afterwards joined the Mauritius Sugar Industry Research Institute to work on breeding and selection of sugarcane varieties. He enrolled for an MSc in Plant Breeding at the University of the Free State in 2008, which he obtained with distinction in 2010. He is married to Dr Sunita Santchurn and the couple has one daughter.

With his thesis, **BREEDING AND SELECTION OF HIGH BIOMASS SUGARCANE VARIETIES FOR SUGAR AND ENERGY PRODUCTION IN MAURITIUS**, the candidate studied sugarcane as a potential renewable bioenergy crop. Variations in early generation hybrids allowed the pioneering definition of four types of canes that could be cultivated for different end-uses. Realised genetic gains were high in fibre content and fibre yield. High biomass and fibre clones were adapted to the humid regions of the island. Compared to the commercial varieties used for sugar production, the high

fibre clones produced a high density of thin and tall cane stalks that were of lighter weight. The low-sucrose-high-fibre energy canes identified can be cultivated in marginal and abandoned lands for the production of electricity and ethanol. The breeding and selection strategies defined and developed in this study, are expected to lead the way for the creation of novel types of sugarcane varieties that will respond to future challenges in terms of food security and a renewable energy strategy.

PROMOTER: Prof M Zhou

CO-PROMOTER: Prof MT Labuschagne

DOCTOR OF PHILOSOPHY (with specialisation in Chemistry)

SEBITLO, Mametsi Rahab

Mametsi Sebitlo was born in Parys on 16 March 1988 and grew up in this tranquil town next to the Vaal River. She received her secondary education in Viljoensdrift, where she matriculated at Vaal Christian School in 2005. She obtained a BSc degree (Chemistry and Physics) in 2008, a Chemistry Honours BSc in 2009, and an MSc in Chemistry (cum laude) in 2012. Mametsi is a keen middle-distance athlete, and specialises in the 800-metre event. She is also a member of the popular seven-member girl singing group, 'Beauty in Grace', singing inspirational and spiritual songs. At present she is a post-doctoral fellow in the Department of Chemistry at the UFS, studying new support systems for heterogeneous catalysts.

With her thesis, **RHODIUM-FERROCENYL COMPLEXES SUPPORTED ON PHOSPHINE-CAPPED SILICON WAFERS FOR HETEROGENEOUS CATALYSIS APPLICATIONS**, the candidate developed optimised methods of binding rhodium and iron bimetallic catalytic species to flat modified silicon surfaces. Industrially, heterogeneous catalysts are supported on porous three-dimensional supports, but the difficulty of accessing small pores containing catalytic particles with analytic methods, substantially complicates mechanistic studies. By using flat, two-dimensional silicon support systems modified to be phosphine-capped, the candidate could identify reactive species with X-ray photoelectron spectroscopic methods. A highlight was proof of the ease of oxidation of rhodium(I) to rhodium(III) on hydroxylated silicon surfaces. She also built an attenuated total reflectance Fourier transform infrared cell. This cell enabled her to monitor reactions on the surface of a modified silicon single crystal utilising infrared light. The performance of the cell was validated by measuring the rate of the reaction between gaseous methyl iodide and surface-bound rhodium(I) complexes. Preparations to publish her research results are in an advanced stage.

PROMOTER: Prof JC Swarts

CO-PROMOTER: Dr E Erasmus

DOCTOR OF PHILOSOPHY (with specialisation in Chemistry)

TSAI, Chih-Wei

Chih-Wei Tsai was born in Bloemfontein on 7 December 1989. He received his secondary education in Bloemfontein, where he matriculated at St Andrew's School in 2007. He obtained the degree BSc (Chemistry) in 2011, BSc Chemistry Hons in 2012, the degree MSc Chemistry in 2014, and the PhD in Chemistry in 2017 at the University of the Free State. He was appointed in the Department of Physics as a postdoctoral researcher at the University of the Free State in 2017.

With his thesis, **MODIFICATION OF NANO-SIZED ZINC ZEOLITIC 2-METHYLIMIDAZOLATE FRAMEWORKS (ZIF-8) BY SOLVENT ASSISTED LIGAND EXCHANGE AND POST-SYNTHETIC MODIFICATION TO ENHANCE FUNCTIONALITY TOWARDS CATALYSIS, GAS STORAGE, AND DRUG DELIVERY**, the candidate made a valuable contribution to both the fields of Metal Organic Frameworks and Nanochemistry. He optimised the reaction conditions to produce ZIF-8 nanoparticles in good yields and narrow size distributions. He then developed a generalised ligand exchange process to chemically modify the surface of these porous nanoparticles. This doubled their uptake of carbon dioxide, a greenhouse gas. Using the same process, he introduced active sites on the ZIF-8 nanoparticles. These sites were then used to anchor selected organic and organometallic catalysts and drugs onto the nanoparticles. His procedure for the chemical tailoring of ZIF-8 nanoparticles demonstrates the versatile adaptation of ZIF-8 nanoparticles towards employment in applications such as heterogeneous catalysis and drug delivery.

PROMOTER: Dr EHG Langner

DOCTOR OF PHILOSOPHY (with specialisation in Physics)

VAN DER WALT, Cornelia

Cornelia van der Walt was born in Welkom on 21 April 1986. She received her secondary education in Bloemfontein, where she matriculated at the Eunice High School in 2004. She obtained the degree BSc (Physics) with distinction in 2007, Hons in Physics with distinction in 2008 at the University of the Free State, and the degree MSc in 2011 at the University of Cape Town. She is married to Andrew Thomas Nash.

With her thesis, **A MOLECULAR DYNAMICS STUDY OF SEGREGATION AND DIFFUSION IN FCC NANOCRYSTALS USING THE SUTTON-CHEN POTENTIAL**, the candidate makes a valuable contribution to Solid State Physics. She developed a new Molecular Dynamics model for calculating the diffusion and segregation parameters for FCC metals. With the model, she studied diffusion dynamics in all the FCC metals and concluded that

the diffusion rate in a bulk crystal depends on the surface orientation of the surface layer. She moved her main focus and studied diffusion in FCC nanocrystals. She observed that the diffusion in nanocrystals is influenced by the particle size, shape, surface orientation, and surface reactivity. She simulated Ag/Cu nanocrystals and showed that Ag segregates to the surface of the nanocrystal and entirely covers the nanocrystal with Ag atoms. This will have a major impact on developing self-healing catalysts. This research has already resulted in two articles in accredited scientific journals, with two more publications pending, and three contributions at national and one at international conferences.

PROMOTER: Prof JJ Terblans

CO-PROMOTER: Prof HC Swart

DOCTOR OF PHILOSOPHY (with specialisation in Computer Science and System)

VERKIJKA, Silas Formunyuy

Silas Verkijika was born in Tobin, Cameroon, on 5 December 1986. He received his secondary education in Kumbo/Bambilli, where he matriculated at the Cameroon College of Arts Science and Technology in 2005. He obtained the degree BSc Information Technology (Mathematical) in 2010, BSc(Hons) Computer Information Systems with distinction in 2013, and MSc Computer Information Systems with distinction in 2015 at the University of the Free State. He started his career as software developer at AITES in Yaoundé in 2011. He joined MCash CEMAC as System Integration Specialist in 2015. He is one of the four co-owners of KOOMZO, a Software (SaaS) company named among the top 30 African Startups by DEMO Africa (2015). He is married to Dr Neneh Brownhilder.

With his thesis, **Evaluating and Improving the Usability of e-Government Websites in Sub-Saharan Africa for Enhancing Citizen Adoption and Usage**, the candidate makes a valuable contribution towards the improvement of the usability of e-government websites in Sub-Saharan Africa (SSA). With this contribution, he improved the Design Science Research (DSR) knowledge contribution framework, developed a six-dimension policy-ingrained model for improving SSA e-government website usability, and presented a quick assessment checklist for use by Information Technology staff of government agencies. The model developed in this study serves as a new solution to known problems in becoming a roadmap for the development of usable e-government websites, specifically in SSA.

PROMOTER: Dr L de Wet

DOCTOR OF PHILOSOPHY (with specialisation in Plant Breeding)

WENTZEL, Barend Smit

Barend Wentzel was born in Reitz on 3 July 1963. He completed his high school training at Voortrekker High School in Bethlehem in 1981. He did a National Diploma in Food Technology at Pretoria Technikon, after which he started working at the Department of Agriculture, Animal and Dairy Science Institute, Irene, and later transferred to Bethlehem, Agricultural Research Council – Small Grain Institute, where he has been a researcher in Cereal Chemistry within the Crop Improvement division for 34 years. He did a bridging programme in Plant Breeding and subsequently obtained his BScHons (2007) and MSc (2011) degrees in Plant Breeding at the University of the Free State (both with distinction).

With his thesis, **ENVIRONMENTAL INFLUENCE ON THE EXPRESSION OF WHEAT PROTEIN FRACTIONS UNDER SOUTH AFRICAN DRYLAND CONDITIONS**, the candidate used size-exclusion high-performance liquid-chromatography to determine the molecular weight distribution of sodium dodecyl sulfate extractable and unextractable protein fractions in different wheat genetic backgrounds and environments under dryland production conditions. Different formulas were derived to measure relative and absolute amounts of glutenin, gliadin, albumin, and globulin and their relationship with baking quality characteristics. Protein fractions did not increase parallel to increased flour protein content and environment largely influenced the relationship of protein fractions with baking quality characteristics. This study revealed that albumin and globulin fractions made a much larger contribution to baking quality characteristics than previously reported for South African wheat cultivars. This study highlighted the complexity of protein quality and its possible genetic manipulation in wheat and will lay the groundwork for further research.

PROMOTER: Prof MT Labuschagne

CO-PROMOTER: Dr A van Biljon

MASTER'S DEGREES

MASTER OF SCIENCE WITH SPECIALISATION IN BOTANY

DE GOUVEIA, Nelson Alexander Mendes

SYSTEMATICS OF *CRABBEA* HARV. (ACANTHACEAE) IN SOUTHERN AFRICA.

Supervisor: Dr L Joubert

Co-supervisor: Dr M Jackson

MASTER OF SCIENCE WITH SPECIALISATION IN PLANT BREEDING

DLAMINI, Njabulo Eugene

GENOTYPE BY ENVIRONMENT INTERACTION AND RESOURCE OPTIMISATION IN SUGARCANE VARIETY EVALUATION IN SWAZILAND

Supervisor: Dr S Ramburan

Co-supervisor: Prof MT Labuschagne

MBUMA, Ntombokulunga Wedy

FAMILY AND PARENT EVALUATION FOR SUGARCANE YIELD IN EARLY STAGE BREEDING POPULATIONS IN SOUTH AFRICA

Supervisor: Dr R van der Merwe

Co-supervisor: Prof M Zhou

SENGWAYO, Sphamandla Helman

GENOTYPE BY ENVIRONMENTAL INTERACTION IN ADVANCED VARIETY TRIALS FOR COASTAL SHORT CYCLE SUGARCANE BREEDING PROGRAMMES IN SOUTH AFRICA

Supervisor: Prof M Zhou

Co-supervisor: Prof MT Labuschagne

MASTER OF ARCHITECTURE

* ALBERTS, Lizaan

AWASEB, Charlene Chandell

BEZUIDENHOUT, Larissa Olivia

BOSCH, Claud LeMans Dexter

* BRAMLEY, Lana

DEMPERS, Jean-Pierre

DU PLESSIS, Frans Jacob

DU TOIT, Jacques

* DU TOIT, Petru

FISCHER, Anri

FISCHER, Pieter Ulrich

HAARHOFF, Janri

HAIPINGE, Emilia Pengeovali

HALAHALA, Gerald Hlomani

KLYNSMITH, Marijcke

* KOTZE, Anika

MATIMBE, Takunda

MEYER, Martha Maria

* MOFFETT, Sinjon Lewis

* NEL, Nina

OLIVIER, Petrus Johannes Stefanus

PIETERSE, Salomon Stephanus

PRETORIUS, Marilie Magdalene

ROBERSON, Megan

SADIE, Marine

SHIPUATA, Esther Amanda

* STAUB, Alexander Peter

STEYN, Coenraad

STOLTZ, Theuna

VAN DER MERWE, Isabella

VAN DER WALT, Jacobus Lukas

VAN DER WATH, Anri

VAN DER WESTHUIZEN, Angelique

* VAN ZYL, Werner

VENTER, Johannes Petrus

WOOLAHAN, Matthew John Stephen

MASTER OF MINERAL RESOURCE MANAGEMENT

BADENHORST, Yolanda

BALOYI, Ngwanasegwale Marcia



DEAN: PROF PD VERMEULEN

EDWARDS, Bryn
KASIRYE, Solomon Patrick
MABUTO, Feziwe Siyasanga
Masunyane, Nthabiseng Wendy
Mavimbela, Ntombifuthi Zandile
Mayekiso, Nqulelwa Shosho
MBATHA, Bhekumusa Richman
MUDAU, James Lloyd
MUDAU, Tshilidzi
MUSEKWA, Shonisani
MZOBE, Siyabonga Hubert
NKGAKILE, Mmoloki Baisana
PETSO, Tshwaro Othiel
SIBIYA, Nosipho Ethel
SMIT, Wiehan Jaco
VENTER, Jan Albert
WARAMBWA, Edgar

MASTER OF SCIENCE

BARNARD, Adri Marlene (with specialisation in Forensic Interdisciplinary)

DNA PROFILING FROM THE CONTENT OF THE ALIMENTARY CANAL OF SARCOPHAGIDAE LARVAE

Supervisor: Mrs L Wessels

Co-Supervisor: Dr S Brink

Co-Supervisor: Dr K Ehlers

BOTHA, Alexander Edward (with specialisation in Zoology)

COMPARATIVE BONE HISTOLOGY OF *STIGMOCHELYS PARDALIS* (LEOPARD TORTOISE), WITH SPECIFIC REFERENCE TO ONTOGENY AND BIOMECHANICS

Supervisor: Dr J Botha-Brink

BREDENKAMP, Elizabeth Gertruida (with specialisation in Geohydrology)

DEVELOPMENT OF A MONITORING STRATEGY AND SAMPLING PROTOCOLS SPECIFIC TO HYDRAULIC FRACTURING ACTIVITIES IN THE KAROO BASIN OF SOUTH AFRICA

Supervisor: Mr F de Lange

BUTLER, Vivian Page (with specialisation in Wildlife)

FEEDING ECOLOGY OF THE GREATER KUDU (*TRAGELAPHUS STREPSICEROS*) IN THE CENTRAL FREE STATE

Supervisor: Dr BB Janecke

Co-Supervisor: Prof GN Smit

CRAUSE, Annelmie (with specialisation in Chemistry)

SYNTHESIS AND CHARACTERISATION OF 3,3"-DIHYDROXY-[1,1':4',1"-TERPHENYL]-4,4"-DICARBOXYLIC ACID DERIVATIVES AS PRECURSORS FOR FUNCTIONALISED Co-MOF-74-III MATERIALS

Supervisor: Dr. EHG Langner

DE BRUYN, Ferdinand Johannes Stefanus (with specialisation in Geology)

VALUATION OF THE UTILISATION OF A MINERAL ASSET VERSUS A SUSTAINABLE ENVIRONMENT

Supervisor: Dr JO Claassen

Co-Supervisor: Prof WA van der Westhuizen

DE GOUVEIA, Nelson Alexander Mendes (with specialisation in Botany)

SYSTEMATICS OF CRABBEA HARV. (ACANTHACEAE) IN SOUTHERN AFRICA

Supervisor: Dr L Joubert

Co-Supervisor: Dr M Jackson

GERBER, Stephanus Johannes (with specialisation in Chemistry)

THE PREPARATION AND CHARACTERISATION OF NANO-METAL HEXACYANOFERRATES WITH POTENTIAL CATALYTIC APPLICATION

Supervisor: Dr E Erasmus

GOUSSARD, Ferdinand (with specialisation in Geohydrology)

THE DEVELOPMENT OF A PRE-MINING GROUNDWATER MONITORING NETWORK FOR OPEN-PIT MINES IN SOUTH AFRICA

Supervisor: Prof PD Vermeulen

*** HASABELDAIM, Emad Hasabeldaim Hadi (with specialisation in Physics)**

SURFACE CHARACTERISATION AND CATHODOLUMINESCENCE DEGRADATION OF ZnO POWDER AND THIN FILMS

Supervisor: Prof HC Swart

Co-Supervisor: Prof OM Ntwaeaborwa

HOFFMAN, Daniël Johannes Michiel (with specialisation in Computer Science and Geography)

USING EYE TRACKING TO ASSESS THE EFFECT OF MAP READER EXPERTISE AND MAP DESIGN ON MAP INTERPRETATION

Supervisor: Prof PJ Blignaut

Co-Supervisor: Dr CH Baker

*** KÜHN, Zarlus Juan (with specialisation in Food Science)**

THE EFFECT OF BRINE INJECTION ON THE CHEMICAL, MICROBIAL AND SENSORY QUALITY OF FRESH BEEF AND PORK

Supervisor: Prof A Hugo

Co-Supervisor: Dr PE Strydom

LIGAVHA-MBELENGWA, Lufuno (with specialisation in Geohydrology)

INVESTIGATION OF THE GROUNDWATER HYDROGEOCHEMISTRY CHARACTERISTICS IN BEAUFORT WEST, SOUTH AFRICA

Supervisor: Dr M Gomo

LOURENS, Magiel (with specialisation in Geohydrology)

ESTABLISHING GROUNDWATER BASELINE CONDITIONS FOR UNCONVENTIONAL GAS PROJECTS

Supervisor: Dr F Fourie

LUM NDE, Adeline (with specialisation in Microbiology)

THE PRODUCTION OF POTENTIALLY PREBIOTIC OLIGOSACCHARIDES BY LEUCOSPORIDIUM SCOTTII

Supervisor: Prof SG Kilian

Co-supervisor: Prof JC du Preez

MADENDE, Primrose (with specialisation in Agricultural Economics)

A RISK EFFICIENCY ANALYSIS OF ALTERNATIVE ELECTRICITY TARIFF STRUCTURES UNDER LIMITED WATER SUPPLY

Supervisor: Prof B Grove

*** MADU, Lynda Uju (with specialisation in Microbiology)**

THE ROLE OF CRYPTOCOCCAL 3-HYDROXY FATTY ACIDS IN MEDIATING CRYPTOCOCCUS-AMOEBAE INTERACTIONS

Supervisor: Dr OM Sebolai

Co-Supervisor: Prof C Pohl-Albertyn

*** MBATA, Ndukenhle Douglas (specialisation in Geohydrology)**

GEOHYDROLOGICAL CHARACTERISATION OF THE MHLATHUZE-MFOLOZI AQUIFER IN KWAZULU-NATAL

Supervisor: Dr M Gomo

Co-Supervisor: Dr J van der Merwe

*** MBO, Zingisile (with specialisation in Entomology)**

REVISION OF THE ENDEMIC SOUTH AFRICAN SPIDER GENUS *DRASSODELLA* HEWITT, 1916 (ARANEAE: GALLIENIELLIDAE)

Supervisor: Dr CR Haddad

MOKHOSI, Mamokhosana Portia (with specialisation in Biochemistry)

DETECTION OF GENETIC VARIANTS IN THE GLYAT GENE OF SOUTH AFRICAN INDIVIDUALS OF AFRICAN DESCENT

Supervisor: Dr FH O'Neill

Co-Supervisor: Dr HG O'Neill

MOKOENA, Pulane (with specialisation in Physics)

STUDY OF THE STRUCTURE, PARTICLE MORPHOLOGY AND OPTICAL PROPERTIES OF MIXED METAL OXIDES

Supervisor: Prof OM Ntwaeaborwa

Co-Supervisor: Prof RE Kroon

DEAN: PROF PD VERMEULEN

MOLABA, Grace Lebohang (with specialisation in Geohydrology)

INVESTIGATING THE POSSIBILITY OF TARGETING MAJOR DOLERITE INTRUSIVES TO SUPPLEMENT MUNICIPAL WATER SUPPLY IN BLOEMFONTEIN: A GEOPHYSICAL APPROACH

Supervisor: Dr FD Fourie

*** MTHETHWA, Katlego Siphamandla (with specialisation in Biochemistry)**

IMPROVED VARIANTS AND FUNGAL ALTERNATIVES TO CYCLOHEXANONE MONOOXYGENASE

Supervisor: Dr DJ Opperman

Co-Supervisor: Prof MS Smit

MYBURGH, Duheine (with specialisation in Geohydrology)

DEVELOPMENT OF GUIDELINES FOR THE MANAGEMENT OF GROUNDWATER IN AND AROUND REHABILITATED COAL DISCARD FACILITIES

Supervisor: Prof PD Vermeulen

*** NTOI, Lumanyano Lisolomzi Assiduus (with specialisation in Chemistry)**

MULTIPLE CHROMISMS ASSOCIATED WITH DITHIZONE

Supervisor: Prof KG von Eschwege

POTGIETER, Johannes Hermanus Jacobus (with specialisation in Geology)

AN EVALUATION OF THE COAL BED METHANE POTENTIAL OF THE MID-ZAMBEZI AND NORTH-EASTERN KALAHARI KAROO BASINS

Supervisor: Prof WA van der Westhuizen

Co-Supervisor: Dr L Nel

RALEAOOA, Vincent Pule (with specialisation in Chemistry)

SYNTHESIS AND CHARACTERISATION OF MANGANESE DOPED ZINC OXIDE, ZINC SULPHIDE AND THEIR COMPOSITES

Supervisor: Prof OM Ntwaeaborwa

Co-Supervisor: Prof A Roodt

SAVECA, Paulo Sérgio Lourenço (with specialisation in Geohydrology)

INVESTIGATION OF HYDROGEOCHEMICAL PROCESS'S AND GROUNDWATER QUALITY IN THE CHÓ'd3KWE DISTRICT, MOZAMBIQUE

Supervisor: Mr Eelco Lukas

Co-Supervisor: Prof Dinis Juizo

*** SPANNENBERG, Jescica Megan (with specialisation in Geohydrology)**

DEVELOPMENT OF A GROUNDWATER RECHARGE MODEL

Supervisor: Prof A Atangana

*** SWARTS, Petrus Johannes (with specialisation in Chemistry)**

INFLUENCE OF STRUCTURAL MODIFICATIONS ON THE PROPERTIES OF NEW FERROCENE-CONTAINING MALONIC ACID DERIVATIVES AND THEIR RHODIUM COMPLEXES HIGHLIGHTED BY COMPUTATIONAL, SPECTROSCOPIC AND ELECTROCHEMICAL STUDIES

Supervisor: Dr E Müller

Co-Supervisor: Dr E Erasmus

Co-Supervisor: Dr I Fernandez

*** VAN DER WESTHUIZEN, Izak Petrus (with specialisation in Astrophysics)**

AN INVESTIGATION OF VARIABILITY AND ITS ASSOCIATED SYNCHROTRON EMISSION IN RELATIVISTIC AGN JETS USING NUMERICAL HYDRODYNAMIC SIMULATIONS

Supervisor: Dr B Van Soelen

Co-supervisor: Prof PJ Meintjes

VAN ROOYEN, Andre Petrus (with specialisation in Entomology)

AN ECOLOGICAL ANALYSIS OF STINK BUG AND LEPIDOPTERAN BORER COMPLEXES ASSOCIATED WITH PECAN AND CITRUS ORCHARDS IN THE VAALHARTS REGION

Supervisor: Mr VR Swart

Co-Supervisor: Dr S Moore

*** VERMAAS, Susann Helena (with specialisation in Geohydrology)**

ESTIMATING RECHARGE OF AN AQUIFER THROUGH SURFACE INFILTRATION METHODS - A CHEMICAL AND PHYSICAL PERSPECTIVE

Supervisor: Dr F Fourie

DEAN: PROF PD VERMEULEN

VERSTER, Anna Margarietha (with specialisation in Soil Science)

WETLAND SOIL PROPERTIES CONDUCIVE TO THE AESTIVATION OF RIFT VALLEY FEVER INFECTED AEDES MOSQUITOS IN CENTRAL SOUTH AFRICA

Supervisor: Prof CW van Huyssteen

VOLSCHENK, Chris (with specialisation in Genetics)

A BIOINFORMATIC STUDY OF LACHENALIA

Supervisor: Dr P Spies

WIID, Emmarentia Elsabé (with specialisation in Zoology)

ASPECTS OF GEOPHAGIA AMONGST DAIRY CATTLE IN A FEEDLOT SYSTEM

Supervisor: Mr HJB Butler

WIID, Roelof Erasmus (with specialisation in Zoology)

POPULATION DYNAMICS AND MANAGEMENT OF INVASIVE ROCK HYRAXES (*PROCAVIA CAPENSIS* PALLAS, 1766) IN THE CENTRAL FREE STATE, SOUTH AFRICA

Supervisor: Mr HJB Butler

MASTER OF SCIENCE

BASSON, Deidré (with specialisation in Actuarial Science)

HLALELE, Pontso Hilda (with specialisation in Statistics)

* LIBETE, Lydia Mamotilane (with specialisation in Statistics)

* LOMBAARD, Leon (with specialisation in Mathematical Statistics Risk Analysis)

* NYAMAI, Miriam Mumbua (with specialisation in Astrophysics)

PHOOBANE, Malingosinathi Paulina (with specialisation in Computer Information Systems)

MASTER OF SCIENCE IN HOME ECONOMICS

A-SALEM EL. OGRBAN, Izdehar Emhemed

FOOD PREFERENCES OF INTERNATIONAL STUDENTS AT THE UNIVERSITY OF THE FREE STATE

Supervisor: Prof HJH Steyn

Co-Supervisor: Dr JF Vermaas

HATTINGH, Aninke

THE PROTEOLYTIC ACTIVITY IN RAW MILK AND THE EFFECT OF SUCH ACTIVITY ON THE STABILITY OF MILK PROTEINS

Supervisor: Dr J Myburgh

Co-Supervisor: Prof G Osthoff

Co-Supervisor: Mr DT Schabot

MASTER OF SCIENCE IN NANOSCIENCE

MABUEA, Busisiwe Petunia

MOKOENA, Mpho Sylvester

MASTER OF SCIENCE IN QUANTITY SURVEYING

DU PLESSIS, Hendri Blignaut

BUILDING CONTRACTS, A MEANS TO MANAGE THE CONSTRUCTION PROCESS: A SOUTH AFRICAN PERSPECTIVE

Supervisor: Mr PM Oosthuizen

Co-Supervisor: Dr S Ramabodu

GREYLING, Cameron

SUSTAINABLE HUMAN SETTLEMENT DEVELOPMENT: COST IMPLICATIONS OF GOING GREEN

Supervisor: Prof K Kajimo-Shakuntup

Co-Supervisor: Mr PM Oosthuizen

MASTER IN ENVIRONMENTAL MANAGEMENT

ACKERMANN, Anton Francois

BUTHELEZI, Wellington Sibusiso



DEAN: PROF PD VERMEULEN

GRUNEWALD, Thecha
* JEFFERY, Roderick Frank
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MACHAKA, Tebatjo Lesetja
MAKATI, Nombongo Unathi
MASWUMA, Lwokhauwa Zacharia
MAZIBUKO, Themba Joshua
MHINGA, Nyiko Mike Collins
MULAUDZI, Thabelo
MUSOLE, Mutukwa Sikatala Ben
NGABASE, Pumeza Pamela
NGALA, Philemon Thokozani
NONJOLA, Vukile
PERUMAUL, Lorraine
RAMETSE, Palesa Potia
RANWEDZI, Rudzani Precious
RIKHOTSO, Charles
SIMFUKWE, Bruce
SINYAMA-STJERNSTEDT, Laura Chiyoosha
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TAAPOPI, Mirjam Selma
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VILJOEN, Peter
ZULU- NXUMALO, Princess Thandazile

MASTER IN LAND AND PROPERTY DEVELOPMENT MANAGEMENT

CHIGAMA, Fungai Sandra (with specialisation in Valuation)
GROBBELAAR, Marique (with specialisation in Valuation)
MASILANA, Ndzalama Tebogo Oscar (with specialisation in Valuation and Project Management)
MOSIKIDI, Mathapelo Pedro (with specialisation in Valuation)
MPONTSANE, Precious Slindile (with specialisation in Valuation)
MSHUMPELA, Andile Sympathy (with specialisation in Valuation)
NGXITO, Bonisile (with specialisation in Valuation)
SMITH, Ryno Van Zyl (with specialisation in Valuation)
STEYN, Hananja Susanna Johanna (with specialisation in Valuation)
THWALA, Prominent Sindisiwe (with specialisation in Valuation)
ZIMEMA, Lutholwethu (with specialisation in Valuation)

MASTER IN DISASTER MANAGEMENT

ATSHIPARA, Frans Ndadhnitha
CHISUTA, Kagele Makoye
FAKUDE, Bongani Christopher
MAVUNDLA, Xola
MOSOTHO, Lebogang Linah
MOTLHALE, Tshepo Enoch
MÜLLER, Garrett Smith
MUTEKWA, Clemance Josiah
NZUZA, Sizwe Louis
RWILIRIZA, Kellen Namara
SIMUKOKO, Joseph Iwwananji
TAWODZERA, Margaret

MASTER IN URBAN AND REGIONAL PLANNING

AMUKUGO, Maria Tauma
* BINGLE, Rouve Velma
DORFLING, Etienne Tromp



DEAN: PROF PD VERMEULEN

DORFLING, Willesia
* FERREIRA, Verno Andries
FRITZ, Eva Ndahafa
HANANA, Anastasia Bernadette
* JACOBUS, Mischka
KALE, Katlego
LEEuw, Olihile Ben
MELOKWE, Othusitse Gilbert
MGWELE, Abongile
MORENA, Kelebogile Grace
MOTAU, Moribula Innocentia
NOTSHIKILA, Siphokazi Ncedisa
VAN BRAKEL, Wessel Johannes Albertus
VAN WYK, Emmerentia

MASTER IN SUSTAINABLE AGRICULTURE

AKALU, Benyam Tesfaye
BALENI, Thembinkosi
CHABE, Mannini Martha
DLUDLA, Precious Zandile
DUNLOP, Antony Campbell
* EKEPU, David
ENGELBRECHT, Darren Luwayne
GARANE, Phumezile
GASSELER, Albert
HLATSHWAYO, Alois Sifelani
KGOMOESWANA, Raesibe Agnes
* KHALISHWAYO, Xolani Vikeyakhe
KHUZWAYO, Jerome Khulekani
MALAHLELA, Neo Lillian
MALINDA, Hulisani
MASEMOLA, Mailitse
MATANGA, Yoliswa Veronica
MBULI, Emmanuel Jabulani
MFUSI, Mduduzi Jeremiah
MFUTWANA, Gloria Nomalinge
MNCWANGO, Bridget Gillian
MOKGOMO, Augustina Tebello
MOLAPO, Mamotsitsi Agnes
MOLOI, Zandile Claudia
MOLOTO, Pheladi Macdonald
MORIFI, Ramolefe Rodney
MSIBI, Silindile Zodwa
MUNGALISA, Ocacious Mungalisa
NDLOVU, Esther Benedict
NGULUBE, Noluthando Faith
NGWABE, Nontokozo Sithembile
NIEUWOUDT, Johann
QOMFO, Phindile
SCHOEMAN, Petrus Jakobus
SHAKWANE, Macduff Katlego
* SHANDU, Siphon Aubrey
SIBISI, Mphakamiseni Patrick
SIMELANE, Sikhumbuzo Edwin
SITHOLE, Duduzile
SITHOLE, Hlezikahle Ntombiyegubazi
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STANDER, Ruan
SWARTS, Stefanus Hendrik
TLALI, Gertrude Rebonoang Mantaoleng
TSHABALALA, Sibusiso Trevor
VAN DER MERWE, Francois Stephanus
XABA, Nomvula Mildred
XALISA, Zamikhaya Wauthas
ZULU, Nosipo

MASTER OF SCIENCE IN AGRICULTURE

ANDJAMBA, Hiltrudis Nahako
ECONOMETRIC ESTIMATION OF THE DEMAND FOR MEAT IN NAMIBIA
Supervisor: Dr AC Geyer

BOGACWI, Lerato
THE INFLUENCE OF MARKETING STRATEGIES ON CUSTOMER LOYALTY FOR AGRICULTURAL RETAIL STORES
Supervisor: Prof BJ Willemse
Co-Supervisor: Dr AC Dreyer

***DLAMINI, Njabulo Eugene Musawenkhosi (with specialisation in Plant Breeding)**
GENOTYPE BY ENVIRONMENT INTERACTION AND RESOURCE OPTIMISATION IN SUGARCANE VARIETY EVALUATION IN SWAZILAND
Supervisor: Prof MT Labuschagne
Supervisor: Dr S Ramburan
Co-Supervisor: Dr R van der Merwe

EDEH, Judith Amarachukwu
QUANTIFYING THE SPATIO-TEMPORAL SOIL WATER CONTENT USING ELECTROMAGNETIC INDUCTION
Supervisor: Dr JH Barnard
Co-Supervisor: Prof LD van Rensburg

FOURIE, Kevin Louis
EVALUATION OF SALINITY AND IRRIGATION GUIDELINES FOR LUCERNE
Supervisor: Prof LD van Rensburg
Co-Supervisor: Dr JH Barnard

GWEBU, Jabulile Zamokuhle
A COMPARISON OF SMALL-SCALE AND COMMERCIAL TOMATO PRODUCTION IN NKOMAZI, MPUMULANGA: A METAFRONTIER ANALYSIS
Supervisor: Dr N Matthews

LAKEW, Hermela Wondwossen
ECONOMIC IMPACT OF CLIMATE CHANGE ON MILK PRODUCTION: A CASE STUDY OF SELECTED AREAS IN THE FREE STATE
Supervisor: Dr AA Ogundeji
Co-Supervisor: Dr W Tesfuhuney
Co-Supervisor: Mr WA Lombard

* **MAHLATHI, Yondela**
WATER FOOTPRINT AS SUSTAINABILITY INDICATOR: A CONSUMER PERSPECTIVE
Supervisor: Dr H Jordaan
Co-Supervisor: Mr E Owusu-Sekyere

* **MBUMA, Ntombokulunga Wedy (with specialisation in Plant Breeding)**
FAMILY AND PARENT EVALUATION FOR SURGARCANE YIELD IN EARLY STAGE BREEDING POPULATIONS IN SOUTH AFRICA
Supervisor: Dr R van der Merwe
Co-Supervisor: Prof M Zhou

MOHLOTSANE, Matohlang Pascalina
WATER FOOTPRINT OF WHEAT AND DERIVED WHEAT PRODUCTS IN SOUTH AFRICA
Supervisor: Dr H Jordaan

MPHAPHATHI, Masindi Lottus (with specialisation in Animal Science)

QUANTIFICATION OF BULL SPERM TRAITS MEASURED BY CASA AND THE RELATIONSHIP TO PREGNANCY RATE FOLLOWING CONTROLLED BREEDING

Supervisor: Prof TL Nedambale

Co-Supervisor: Prof JPC Greyling

*** NYAM, Yong Sebastian (with specialisation in Agricultural Economics)**

A METAFRONTIER ANALYSIS OF SHEEP PRODUCTION IN THE N8 DEVELOPMENT CORRIDOR

Supervisor: Dr N Matthews

Co-Supervisor: Dr YT Bahta

*** PHAKELA, Keneuoe (with specialisation in Plant Breeding)**

IMPROVED SEPARATION OF POLYMERIC AND MONOMERIC PROTEIN FRACTIONS USING A HIGH RESOLUTION COLUMN

Supervisor: Dr A van Biljon

Co-Supervisor: Prof MT Labuschagne

Co-Supervisor: Mr BS Wentzel

PHOHLLO, Motsedisi Portia (with specialisation in Soil Science)

SOIL QUALITY OF KIKUYU, RYEGRASS AND CLOVER PASTURE MIXTURES IN THE TSITSIKAMMA

Supervisor: Dr E Kotzé

Co-Supervisor: Prof CC Du Preez

*** SENGWAYO, Sphamandla Helman (with specialisation in Plant Breeding)**

GENOTYPE BY ENVIRONMENT INTERACTION IN ADVANCED VARIETY TRIALS FOR COASTAL SHORT CYCLE SUGARCANE BREEDING PROGRAMMES IN SOUTH AFRICA

Supervisor: Prof M Zhou

Co-Supervisor: Prof MT Labuschagne

VAN STRAATEN, Leon Francois (with specialisation in Soil Science)

RESPONSE OF A SANDY SOIL AND MAIZE PLANTS TO INORGANIC AND CHELATED ZINC SOURCES

Supervisor: Prof CC du Preez

Co-Supervisor: Dr G Ceronio

MASTER OF AGRICULTURE

BOUGARD, Dominique Alyssa (with specialisation in Agricultural Management)

AGRICULTURAL CREDIT MODELS: IDENTIFYING HIGH RISK APPLICANTS

Supervisor: Dr JIF Henning

Co-Supervisor: Dr H Jordaan

CALITZ, Petronella Anne (with specialisation in Agricultural Economics)

FRAMEWORK FOR A VOLUNTARY BEEF TRACEABILITY SYSTEM FOR SOUTH AFRICA


Supervisor: Prof BJ Willemsse

MEDAL

DEAN'S MEDAL

AWARDED TO THE BEST MASTER'S DEGREE STUDENT IN THE FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

Ms SPANNENBERG, Jescica Megan – Master of Science



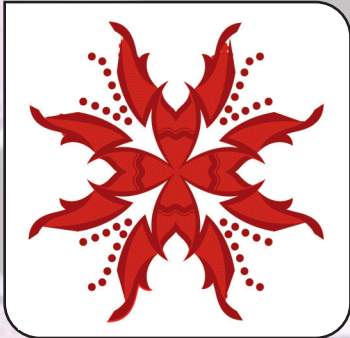
The Seanamarena – the traditional Basotho blanket.



The Main Procession graduation gowns – embroidered with rich diversity

South Africa, and the Free State in particular, has a long-standing friendship with our neighbouring country, Lesotho. Through a shared history, we have become co-creators of our futures. For this reason, the UFS decided to incorporate our tradition with that of the Basotho in the design of our Main Procession graduation gowns.

The gowns are inspired by the Seanamarena – the traditional Basotho blanket. The different patterns on the Seanamarena indicate the status one holds in the Basotho nation or reflect the occasion being celebrated. Keeping the Seanamarena pattern in mind, we combined our traditional academic designs with that of the Basotho nation.



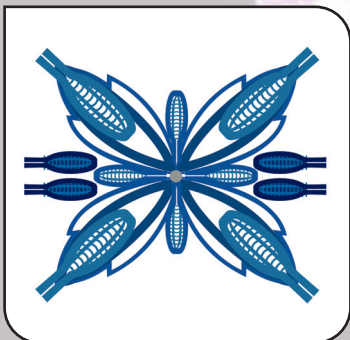
Yoke pattern for the Chancellor and Vice-Chancellor

This Seanamarena pattern is an interpretation of a design – used exclusively for the king and chiefs – which means “to swear by the king”. This blanket has the highest status of all Basotho blankets.



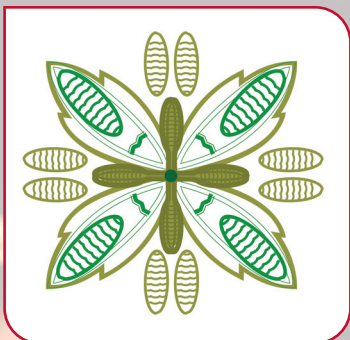
Yoke pattern for the Chairperson of the Council

This Seanamarena Victorian crest motif appeared after the visit of the Prince of Wales to Lesotho in 1925, which made a profound impression on the local people. Customers refer to this blanket as ‘lesiba’ – meaning feathers – when buying it.



Yoke pattern for the Vice-Rector

This Seanamarena Poone design symbolises good crops, wealth, and fertility. The Poone is given as a present to honour an important visitor.



Yoke pattern for Registrar

The same Seanamarena Poone design used for the Vice-Rector applies to the Registrar, with some slight design and colour alterations.

The Deans wear gowns made in the colours of the faculties or others which indicate the office they hold.

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Funding available for Research Master's and Doctoral studies in 2017

Tuition fees for full-time and part-time studies in 2017 will be covered

The University of the Free State has allocated funds for research Master's and Doctoral bursaries for 2017.

- Funding for **research** master's students is available for the first three years
- For doctoral students funding is available for the first four years
- Funding is available for full-time and part-time study

Who can apply?

- All South African and international students from any higher-education institution are eligible
- Students must meet all academic requirements of the university and must already be admitted to an academic programme at the University of the Free State

Closing date: Postgraduate students can apply at any time.

ENQUIRIES CAN BE DIRECTED TO:

Ms Joy Nogabe at the Postgraduate School, Johannes Brill Building on +27 51 401 7161 or NogabeSJ@ufs.ac.za or Ms Pinky Motlhabane on +27 51 401 9635 or MotlhabaneGK@ufs.ac.za

What is covered?

- Eligible candidates who are South African citizens or are from SADC countries, will receive 100% funding to cover their **academic tuition fees** on an annual basis
- Eligible international students and students from non-SADC countries will receive funding of up to 67% of their **annual academic tuition fees**

What is not covered?

- All master's and PhD students pay registration fees, residence prepayments, accommodation (for students who stay in university residences), and living costs
- International levies
- International students and non-SADC students will still be required to pay 33% of their tuition fees

Terms and conditions

- *Renewal of funding is subject to the previous year's academic performance*
- *Funding is only allocated for the allowed study period of three years for master's students and four years for doctoral students*



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