DECEMBER 2021

GRADUATION CEREMONY

Bloemfontein, Qwaqwa, and South Campuses

FRIDAY
10 DECEMBER 2021
09:00

Faculty of Natural and Agricultural Sciences

Higher Certificates, Bachelor's Degrees, Bachelor Honours Degrees, Postgraduate Diplomas, Master's, and Doctoral Degrees

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

PROGRAMME

10 DECEMBER 2021 | 09:00

BLOEMFONTEIN, QWAQWA AND SOUTH CAMPUSES

CONSTITUTION OF THE CONGREGATION
Chancellor: Prof B Mohale

OFFICIAL WELCOME AND WORD OF THANKS
Rector and Vice-Chancellor: Prof FW Petersen

MUSICAL ITEM
Franz Schubert (1797-1828)
Ständchen/Serenade
with Mongezi Mosoaka (tenor) and Margot Viljoen (piano)

PRESENTATION OF CANDIDATES
Vice-Rector: Research, Innovation, and Internationalisation: Prof RC Witthuhn

CONGRATULATORY MESSAGE
Chancellor: Prof B Mohale

NATIONAL ANTHEM OF SOUTH AFRICA
Nkosi Sikelel' iAfrika
with Thesele Kemane (bass-baritone) and the Odeion String Quartet: Samson Diamond (violin)
Margot Viljoen (violin)
Jeanne-Louise Moolman (viola)
Anmari van der Westhuizen (cello)

DISSOLUTION OF THE CONGREGATION
Chancellor: Prof B Mohale

PLEASE NOTE

List of candidates receiving degrees, diplomas, and certificates:
An* next to a name indicates that the degree, diploma, or certificate is awarded with distinction.

Nkosi sikelel’ iAfrika

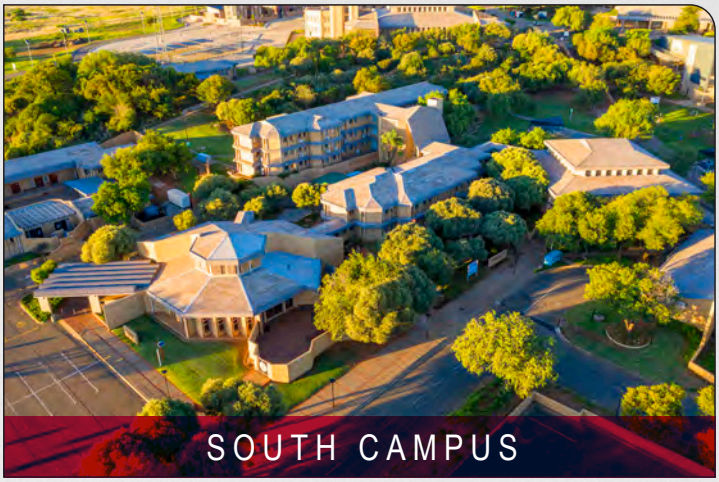
NATIONAL ANTHEM OF SOUTH AFRICA

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.

Inspiring excellence, transforming lives through quality, impact, and care.

BLOEMFONTEIN CAMPUS

QWAQWA CAMPUS



SOUTH CAMPUS

ABOUT THE UFS

The University of the Free State (UFS) has a proud history as one of the oldest, most respected institutions of higher education in South Africa. It opened its doors in Bloemfontein in **1904** as the Grey University College, with six students in the Humanities. Today it is a **multi-campus institution**, with two diverse campuses in Bloemfontein and one in Qwaqwa in the scenic Eastern Free State, accommodating more than 40 000 students in its **seven faculties** (Economic and Management Sciences, Education, Health Sciences, the Humanities, Law, Natural and Agricultural Sciences, Theology and Religion), with an increasing number of international students and associates, and an ever-widening scope of active involvement in and contribution to its surrounding communities.

For the past **117 years**, the UFS has been delivering quality graduates who have made their mark in various sectors. What sets the institution apart is its holistic student support initiatives, enabling it to achieve some of the highest success rates in the country. Delivering students who are in high demand in the global job market, remains a top priority. An established network of industry partners and close collaboration with the public and private sectors, as well as a continuous process of transformation and curriculum renewal, dovetail to produce highly employable graduates.

UFS research efforts are driven by dedicated scholars, some of whom are **international leaders** in their fields, with industry and social impact and real-world application.

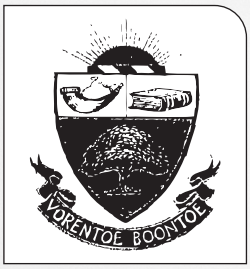
Through the principle of **engaged scholarship**, the UFS responds to societal needs, using its **scholarly and professional expertise** with an intentional public purpose and benefit.

It is an institution that goes all out to provide its students and staff with an outstanding **university experience**. Anchored in a value bedrock of **social justice**, **respect**, and **caring**, the institution has managed to remain steadfastly relevant in a challenging and ever-changing national higher education landscape.

DEVELOPMENT OF THE UFS CREST OVER MORE THAN A CENTURY

1904

Up to 1935, the same coat of arms was used as the Grey College School.



1935

By 1935, with the name change to University College of the Orange Free State, the coat of arms fell into disuse, especially among students.

1947

In 1947, an agreement between management and students led to the new motto Per Fidem ad Sapientiam (Through faith to wisdom).

1950

In 1952, it was changed to In Deo Sapientiae Lux (In God is the light of wisdom). The traditional orange, white and blue, linking the UFS to the South African national colours, changed in the late 1990s.

The orange was replaced by cherry red.

2011

The academic brand - the historic University of the Free State crest that has been the symbol of the university since 1952, has evolved to embrace the aesthetic expectations of the stakeholders.

The shape of the traditional academic shield has been simplified and contemporised. Much of the symbolism of the crest remains intact, acknowledging the location of the UFS brand as one of the country's premier institutions of higher education, with a proud history of academic excellence and an ever evolving, vibrant culture.

Honorary Awards | Honorary Doctorates

1950 GLP Moerdyk – DLitt (h.c.)
1951 NC Havenga – LLD (h.c.)
1952 Thos Blok – DEd (h.c.)
SHS Rubidge – DSc (h.c.)
1955 CR Swart – LLD (h.c.)
CA v Niekerk – LLD (h.c.)
1958 CPB Brink – LLD (h.c.)
CF Visser – DEd (h.c.)
1959 DB Bosman – DLitt (h.c.)
SP le Roux – DScAgric (h.c.)
DF Malherbe – DLitt (h.c.)
GH v Rooyen – MA (h.c.)
1960 SPE Boshoff – DLitt (h.c.)
1961 T Boydell – DPhil (h.c.)
1962 ES Botes – DEd (h.c.)
PE Rousseau – DSc (h.c.)
1963 EH Louw – LLD (h.c.)
EN Roberts – DSc (h.c.)
JGF (Kaalkop) vd Merwe - DCom (h.c.)
HF Verwoerd – DLitt et Phil (h.c.)
1966 PSZ Coetzee – DPhilTh (h.c.)
PJ du Toit – DSc (h.c.)
MS Louw – DCom (h.c.)
1967 SM Naudé – DSc (h.c.)
LC Steyn – LLD (h.c.)
BJ Vorster – LLD (h.c.)
1968 SJ Naudé – DCom (h.c.)
1969 CW (Nellie) Swart – DPhil (h.c.)
AJJ Wessels – DCom (h.c.)
1970 GS Nienaber – DLitt (h.c.)
HO Mönnig – DSc (h.c.)
1971 N Diederichs – DCom (h.c.)
RS Verster – DPhil (h.c.)
1972 LW Hiemstra – DPhil (h.c.)
PJ Meyer – DPhil (h.c.)
1975 PJ Nienaber – DLitt (h.c.)
De la H de Villiers – DScAgric (h.c.)
GJ Stander – DSc (h.c.)
1976 AJA Roux – DSc (h.c.)
1978 SP Botha – DSc (h.c.)
EM van Zinderen Bakker – DSc (h.c.)
HB Thom – DEd (h.c.)
1979 FCL Bosman – DPhil (h.c.)
G Cronjé – DSocSc (h.c.)
CJF Human – DCom (h.c.)
1980 G Boonzaier – DPhil (h.c.)
1981 PW Botha – DPhil (h.c.)
B Human – DCom (h.c.)
SG Shuttleworth – DSc (h.c.)
1982 BLS Franklin – DPhil (h.c.)
GvN Viljoen – DEd (h.c.)
1983 L Luyt – DCom (h.c.)
SF Zaaiman – DPhil (h.c.)
1984 HS Steyn – DSc (h.c.)
FR Tomlinson – DScAgric (h.c.)
JH vd Berg – DMed (h.c.)
1985 L Alberts – DSc (h.c.)
GG Cillié – DPhil (h.c.)
SPD le Roux – DLitt (h.c.)
A Polson – DPhilMed (h.c.)
J du P Scholtz – DPhil (h.c.)
1986 S Grové – DMus (h.c.)
FP Retief – DMed (h.c.)
JA Stegmann – DCom (h.c.)
1987 WA Joubert – LLD (h.c.)
B Kok – DPhil (h.c.)
WP Venter – DCom (h.c.)
1988 JJN Cloete – DAdmin (h.c.)
FC Fensham – DLitt (h.c.)
JW vd Riet –DPhil (h.c.)
1989 BJ Meyer – DSc (h.c.)
N van Uden – PhD (h.c.)
1990 MG Corbett – LLD (h.c.)
JS Rabie – DLitt (h.c.)
1991 SS Brand – DCom (h.c.)
JWL de Villiers – DSc (h.c.)
GT Fagan – DArch (h.c.)
JH Hofmeyer – PhD (h.c.)
E v Heerden – DLitt (h.c.)
1992 JP Louw – DLitt (h.c.)
H Olivier – DSc (h.c.)
1993 JD Anderson - DMed (h.c.)
RR Arndt – DSc (h.c.)
SJ Naudé – LLD (h.c.)
1994 JJ Human – DPhil (h.c.)
JA Myburgh – DMed (h.c.)
JP vd Walt – DSc (h.c.)
1995 WA Landman – DEd (h.c.)
WL Mouton – DPhil (h.c.)
1996 WDO Marasas – DSc (h.c.)
NE Wiehahn – LLD (h.c.)
1997 AP Brink – DLitt (h.c.)
B Hurwitz – DPhil (h.c.)
1998 FC Müller – DMed (h.c.)
1999 FM Claerhout – DPhil (h.c.)
JJF Hefer – LLD (h.c.)
S Nigam – DSc (h.c.)
WL Nkuhlu – DCom (h.c.)
MA Ramphele – DPhil (h.c.)
HJO van Heerden – LLD (h.c.)
FJ van der Merwe – PhD (h.c.)
2000 MH Daling – DCom (h.c.)
TN Liversedge – PhD (h.c.)
I Mahomed – LLD (h.c.)
2001 BP Gilbertson – DCom (h.c.)
NR Mandela – LLD (h.c.)
EC Taglauer – DSc (h.c.)
2002 BH Meyer – PhD (h.c.)
BAK Rider – LLD (h.c.)
CF Slabber – PhD (h.c.)
JM Stetar – DEd (h.c.)
2003 EWA de Corte – DEd (h.c.)
HA Serebro – DPhil (h.c.)
AG Sykes – DSc (h.c.)
2004 S Badat – DPhil (h.c.)
R Bringle – DPhil (h.c.)
J de Wet – DMus (h.c.)
CF Fauconnier – DSc (h.c.)
GJ Gerwel – DPhil (h.c.)
WD Jonker – DTh (h.c.)
A Krog – DLitt (h.c.)
K Mokhele – DPhil (h.c.)
CJC Nel (Postuum) – PhD (h.c.)
L Quayle – DMus (h.c.)
T (Karel) Schoeman – DLitt (h.c.)
YK Seedat – DMed (h.c.)
MK Seely – DSc (h.c.)
C Seerveld – DPhil (h.c.)
F van Z Slabbert – DPhil (h.c.)
JC Steyn – DLitt (h.c.)
PA Verhoef – DTh (h.c.)
L van den Heever – LLD (h.c.)
HA Wessels – LLD (h.c.)
2005 A du P Heyns – DMed (h.c.)
JJF Durand – DPhil (h.c.)
JA Groenewald – DSc (h.c.)
WH Neuser – DTh (h.c.)
M Ramos – PhD (h.c.)
SJ Terreblanche – DCom (h.c.)
2006 T Moss – PhD (h.c.)
PV Cox – PhD (h.c.)
2007 BJ (Bannie) Britz – DArch (h.c.)
KPD Maphalla – PhD (h.c.)
2008 D Ferreira – DSc (h.c.)
2009 JC Loock – PhD (h.c.)
LTC Harms – LLD (h.c.)
2010 P Gordhan – PhD (h.c.)
BBS Ngubane – PhD (h.c.)
AH Strydom – PhD (h.c.)
M Jones – PhD (h.c.)
2011 D Tutu – DTh (h.c.)
P Fourie – DLitt (h.c.)
OG Winfrey – DEd (h.c.)
RWM Frater – PhD (h.c.)
A Sawyer – DEd (h.c.)
2012 RJ Goldstone – LLD (h.c.)
ER v Heerden – DLitt (h.c.)
M Nussbaum – DLitt (h.c.)
OW Prozesky – MD (h.c.)
FDJ Brand – LLD (h.c.)
2013 ZKG Mda – DLitt (h.c.)
2014 ML Blum – PhD (h c)
L Mulvey – DLitt (h c)
2015 L Brahimi – DPhil (h.c.)
JM Samuel – DEd (h.c.)
MA Oduyoye – DTh (h.c.)
JD Sacks – DEcon (h.c.)
2016 RJ Khoza – DEcon (h.c.)
TA Manuel – DEcon (h.c.)
M du Preez – PhD (h.c.)
J Samoff – DPhil (h.c.)
F Haffajee – PhD (h.c.)
2017 PH Holloway - DSc (h.c.)
M Botha – LLD (h.c.)
2019 BL Fanaroff – DSc (h.c)
J Mofokeng wa Makhetha – DLitt (h.c.)
MB Molemela – LLD (h.c.)
2021 ZM Yacoob – LLD (h.c.)
SM Pityana – DPhil (h.c.)
RJ van Niekerk – DLitt (h.c.)

Shields of Honour, Council and Chancellor's Medals

1994 Prof FO Müller (Shield of Honour)
RE Schoombie (Shield of Honour)
1995 Prof FO Müller (Chancellor's Medal)
RE Schoombie (Chancellor's Medal)
1996 Prof S Mittman (Shield of Honour)
1997 Prof M Jansens (Shield of Honour)
1998 Prof CJC Nel (Chancellor's Medal)
Prof C Swanepoel (Chancellor's Medal)
1999 WJ (Hansie) Cronje (Shield of Honour)
Prof David Justice (Shield of Honour)
2000 Prof P Rosseel (Shield of Honour)
Prof MJ Viljoen (Chancellor's Medal)
2001 Prof PC Potgieter (Chancellor's Medal)
2002 T Moss (Shield of Honour)
Prof CD Roode (Chancellor's Medal)
2003 Prof HC Janse van Rensburg (Council Medal)
Prof SA Petersen (Shield of Honour)
2008 Ludo Helsen (Shield of Honour)
2009 Prof JU Grobbelaar (Council Medal)
2010 Mrs AM Dippenaar (Chancellor's Medal)
2014 Dr H Verster (Chancellor's Medal)
2014 Mr JL Pretorius (Chancellor's Medal)
2016 Mr AD Osler (Chancellor's Medal)
Ms M van der Merwe (Chancellor's Medal)
2017 Ms JS Isaacs (Chancellor's Medal)
2019 Mr JF de Villiers (Chancellor's Medal)
Ms EM Oosthuizen (Council Medal)

MESSAGE FROM THE RECTOR AND VICE-CHANCELLOR

Dear Student

Welcome to the virtual graduation ceremony of the University of the Free State. A special word of welcome to the members of the university management and our Chancellor, Prof Bonang Mohale, who are part of the ceremony.

Congratulations to our graduands – this is a special day indeed and it is certainly heart-warming to see so many of you being conferred these well-deserved qualifications today. You should be proud of your achievements. The fact that you had to adjust to a new normal to accomplish what you have in a very challenging time is no easy feat – take a moment to celebrate and acknowledge YOU.

Let us also take a moment to acknowledge and reflect on the personal losses that many of you have experienced. At the same time, you would not have reached this milestone without the support of many people around you – let us also acknowledge and express gratitude to your support structures – the parents, family, friends, guardians, and lecturers who made it possible for you to be here today.

As you venture into the world, you will find yourself contemplating what your role in the world is and what kind of a world you want to live in. Sometimes the road ahead can be challenging and complex – however, remember that the skills of hard work, resilience, determination, and focus will help you forge ahead. After all, these are the skills that have helped you to achieve your UFS qualification.

Also be mindful that collective and individual responsibility is important to our success – this became very clear during the pandemic. Reach out to others, lend a helping hand wherever you can, support each other, involve yourselves in your communities, and most of all, be kind and humane. Be mindful of these in everything that you do.

Graduands, I am proud of your resilience. You are truly inspiring, and I am confident that you are well prepared to embrace the future and flourish in anything you set your mind to.

Be brave, be bold, and make a difference in this world.

I conclude with the famous words of Mahatma Gandhi, "You must be the change you want to see in the world."

Graduands, simply put, recognise that change is inevitable and that every moment in life offers us an opportunity for positive change and to remain in touch and grounded. Initiating personal change allows us to rise to any challenge and become better as a result.

Best wishes
PROF FW PETERSEN
RECTOR AND VICE-CHANCELLOR | UNIVERSITY OF THE FREE STATE

Beste Student

Welkom by die Universiteit van die Vrystaat se virtuele gradeplegtigheid. 'n Spesiale woord van verwelkoming aan die lede van die universiteitsbestuur en ons Kanselier, prof Bonang Mohale, wat deel vorm van die plegtigheid.

Baie geluk aan ons graduandi – vandag is voorwaar 'n spesiale dag en dit is inderdaad hartverblydend om te sien dat hierdie welverdiende kwalifikasies aan so baie van julle toegeken word. Julle kan trots wees op julle prestasies. Die feit dat julle in 'n baie moeilike tyd moes aanpas by 'n nuwe normaal om te bereik wat julle het, is geen maklike prestasie nie – neem 'n oomblik om JOU te vier en te erken.

Laat ons ook 'n oomblik afstaan om die persoonlike verliese wat baie van julle ervaar het, te erken en daaroor na te dink. Terselfdertyd sou julle nie hierdie mylpaal bereik het sonder die ondersteuning van baie mense rondom julle nie – laat ons ook erkenning gee en ons dank uitspreek teenoor julle ondersteuningstrukture – die ouers, gesinne, vriende, voogde en dosente wat dit vir julle moontlik gemaak het om vandag hier te wees.

Waar julle die wêreld aandurf, sal julle vind dat julle dalk wonder oor wat julle rol in die wêreld is en die soort wêreld waarin julle wil leef. Die pad vorentoe kan soms uitdagend en kompleks wees – onthou egter dat die vaardighede van harde werk, veerkragtigheid, vasberadenheid en fokus julle sal help om vooruit te gaan. Dit is immers die vaardighede wat julle gehelp het om julle UV-kwalifikasies te behaal.

Dink ook daaraan dat gemeenskaplike en individuele verantwoordelikheid belangrik is vir ons sukses – dit het baie duidelik geword tydens die pandemie. Reik uit na ander mense, sit 'n handjie by waar julle ook al kan, ondersteun mekaar, raak betrokke by julle gemeenskappe, en bowenal, wees welwillend en menslik. Hou dit in gedagte in alles wat julle doen.

Graduandi, ek is trots op julle veerkragtigheid. Julle is waarlik inspirerend, en ek is vol vertroue dat julle goed voorbereid is om die toekoms aan te gryp en te floreer in enigiets wat julle aanpak.

Wees dapper, wees sterk en maak 'n verskil in hierdie wêreld.

Ek sluit af met die bekende woorde van Mahatma Gandhi, "Julle moet die verandering wees wat julle in die wêreld wil sien."

Graduandi, om dit eenvoudig te stel, erken dat verandering onvermydelik is en dat elke oomblik in die lewe aan ons 'n geleentheid bied vir positiewe verandering en om in voeling en gegrond te bly. Om persoonlike verandering te onderneem, stel ons in staat om enige uitdaging die hoof te bied en gevolglik te verbeter.

Beste wense
PROF FW PETERSEN
REKTOR EN VISEKANSELIER | UNIVERSITEIT VAN DIE VRYSTAAT

Moithuti ya Ratehang

Re a le amohela moketeng wa kabo ya mangolo a yunivesithi o etswang ka vetjhuale mona ho University of the Free State. Mantswe a kgethehileng a kamohelo ho botsamaisi ba yunivesithi le ho Chancellor ya rona, Moprofesara Bonang Mohale, bao e leng karolo ya mokete ona.

Ditebohiso ho baithuti ba rona ba di-graduate – lena ke letsatsi le kgethileng ka nnete mme dipelo tsa rona di thabile haholo ho bona ba bangata ba lona le fuwa mangolo a lona a tshwaneleho ao le tshwanelehang ho a fumana kajeno. Re hlile re ikotla sefuba ka sena seo le se fihleletseng. Lebaka la hore le ile la tlameha ho fetohela maemo a matjha a tlwaelo ho fihlella tsena tseo le di fihleletseng dinako tse neng di na le diphephetso tse kgolo e ne e se papadi – re nka motsotso ona ho LE thoholetsa haholo.

Re boela re nka motsotso ona ho le lebohisa le ho hetla morao ho bona ditahlehelo tseo le bileng le tsona ka bomong. Ka nako e tshwanang, le ne le ke ke la kgona ho fihlella mohato ona wa bohlokwa ntle le tshehetso ya batho ba bangata ba le potapotileng – le leboha ditheo tse ileng tsa le tshehetsa – batswadi, lelapa, metswalle, bahlokomedi, le dilektjhara ba ileng ba le thusa ho fihla mohatong ona kajeno.

Jwalo ka ha le tswela kantle lefatsheng, le tla iphumana le nahana ka hore seabo sa lona e tla ba sefe lefatsheng le hore na le lakatsa ho phela lefatsheng la mofuta ofe. Ka dinako tse ding tsela e larileng kapele e ka ba le diphephetso le ho rarahana – le ha ho le jwalo, hopolang hore tsebo le bokgoni ba ho ikakgela ka setotswana mosebetsing, mamello tlasa maima, boikemisetso, le ho tsepamisa dikelello ho tla le thusa ho hatela pele. Ho phaella mona, ena ke tsebo le bokgoni bo le thusitseng ho fihlella mangolo a lona a tshwaneleho mona UFS.

Le boele le hopole hore boikarabelo bo kopanetsweng le boikarabelo ba motho ka bomong ke ba bohlokwa bakeng sa katleho ya rona – sena se ile sa bonahala ka ho hlakileng nakong ya lefu la sewa. Ntshang letsoho bakeng sa ho thusa ba bang ka nako efe kapa efe ha ho kgonahala, tshehetsanang, e bang le seabo mesebetsing ya metse ya lona, e bang batho ba mosa le ba bontshang moya wa botho. Hopolang dintho tsena nthong efe kapa efe eo le e etsang.

Ke hlile ke motlotlo ka mamello ya lona, di-graduate. Ka sebele le fana a kgothatso, mme ke kgodisehile hore le malala-a-laotswe ho amohela bokamoso le ho atleha nthong efe kapa efe eo o tsepamisang mehopolo ya lona ho yona.

E bang sebete, mme le etse phapang lefatsheng lena.
Ke dihela dikgala ka mantswe a tummeng a Mahatma Gandhi, "Le tlameha ho ba phetoho eo le lakatsang ho e bona lefatsheng."

Di-gratuate, ho beha dintho ka mantswe a bonolo, le tlameha ho lemoha hore phetoho ke ntho e ke keng ya qojwa le hore motsotso o mong le o mong bophelong o fana ka monyetla bakeng sa phetoho e ntle le ho tswela pele le na le kamano le ho boloka botsitso. Ho qadisa phetoho ho rona ka seqo ho re dumella ho thulana ka katleho le phephetso efe kapa efe mme ditholwana tsa sena ke ho ntlafala.

Ditakaletso tse ntle
MOPROFESARA FRANCIS W PETERSEN
MOREKTORO LE MOTLATSA MOKANSELIRI | YUNIVESITHI YA FREISTATA

VISION

The University of the Free State is a research-led, student-centred and regionally engaged university that contributes to development and social justice through the production of globally competitive graduates and knowledge.

MOTTO

IN VERITATE SAPIENTIAE LUX

(In Truth is the Light of Wisdom)

OFFICE BEARERS

CHANCELLOR
Prof B Mohale
Professor of Practice (JBS)

RECTOR AND VICE-CHANCELLOR
Prof FW Petersen
PhD (SU)

CHAIR OF COUNCIL
Mr D Noko
HND Mechanical Engineering (UJ)

VICE-RECTOR: OPERATIONS
Prof P Naidoo
PhD (VISTA)

VICE-RECTOR: ACADEMIC
Dr EL van Staden
DPhil (UJ)

VICE-RECTOR: RESEARCH, INNOVATION AND INTERNATIONALISATION
Prof RC Witthuhn
PhD (UFS)

EXECUTIVE DIRECTOR: STUDENT AFFAIRS
Mr T Hlasho
MPhil (NMU)

REGISTRAR:
Mr NN Ntsababa
MPA (NMU)

CAMPUS PRINCIPAL: SOUTH CAMPUS
Dr M Madiope
DEd (Unisa)

CAMPUS PRINCIPAL: QWAQWA CAMPUS
Dr M Mandew
PhD (UN)

PRESIDENT OF CONVOCATION
Dr PD du Toit
PhD (UFS)

PRESIDENT: INSTITUTIONAL STUDENT REPRESENTATIVE COUNCIL
Mr J Thoka

DEANS

DEAN:
ECONOMIC AND MANAGEMENT SCIENCES

Prof HJ Kroukamp
DPhil (UPE)

DEAN:
EDUCATION

Prof LC Jita
PhD (MSU)

DEAN:
HEALTH SCIENCES

Prof GJ van Zyl
PhD (UFS)

DEAN:
THE HUMANITIES

Prof H Hudson
PhD (UFS)

DEAN:
LAW

Prof JC Mubangizi
LLD (UDW)

DEAN:
NATURAL AND AGRICULTURAL SCIENCES

Prof PD Vermeulen
PhD (UFS)

DEAN:
THEOLOGY AND RELIGION

Prof RS Letšosa
PhD (PU/CHE)

FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

NATURAL AND AGRICULTURAL SCIENCES
UFS

DEAN |

PROF PD VERMEULEN

AGRICULTURAL SCIENCES

BACHELOR'S DEGREES

BACHELOR OF AGRICULTURE MAJORING IN AGRICULTURAL ECONOMICS

MAHAMBA, Thina

MOLETSANE, Kananelo Kenny

MTSHALI, Awande Jabulani

THOMAS, Wian

BACHELOR OF AGRICULTURE MAJORING IN AGRICULTURAL EXTENSION

BACELA, Sive

BACHELOR OF AGRICULTURE MAJORING IN AGRICULTURAL MANAGEMENT

ADONIS, Adriane Joane

CHOANE, Rajane Abram

DE WITT, Guilleame Ernst JJ

KHAMBULE, Mduduzi Vusimuzi

MAMBURU, Takalani

MFO, Sintu

MOKHOBO, Oleseng Alice

NUTT, William James

SAZIWA, Siziphiwe Sibahle

SEKAKE, Susan Mantsie

STANDER, Adriaan Hendrikus

VAN DER MERWE, Lukas Marthinus

VAN ROOYEN, Dirk Reynier

VAN SCHALKWYK, Albertus Johannes Strauss

VILJOEN, Jan Gabriël

BACHELOR OF AGRICULTURE MAJORING IN ANIMAL PRODUCTION MANAGEMENT

DE WET, André Rudolph

KLINDT, Wilhelm Carel Stephanus

NELL, George Philippus

SEPTEMBER, Amy-Leigh

BACHELOR OF AGRICULTURE MAJORING IN CROP PRODUCTION MANAGEMENT

NHUBUNGA, Nyeleti Venicia

BACHELOR OF AGRICULTURE MAJORING IN MIXED FARMING MANAGEMENT

GREYLING, Pieter Gerhardus

PRETORIUS, John Henry

SALES, Stian Wanti

SOKATSHA, Likho

SOKE, Puseletso Lillian

VAN DEN HEEVER, Louis Juan

VAN HEERDEN, Schalk Pieter

VAN NIEKERK, Izak Andries

VENTER, Jacobus Johannes

BACHELOR OF COMPUTER INFORMATION SYSTEMS

CUBENI, Qhama

FUKU, Loyiso

KODISANG, Tshegofatso Noluthando*

MODISE, Hlalele Sylvanius

NDLOVU, Bongani Vulindlela

BACHELOR OF CONSUMER SCIENCE

LUTSHABA, Siphesihle

NEL, Eloise

NZAMA, Ntokozo Noncebo

BACHELOR OF SCIENCE

LONAKE, Khauhelo Godwill

RAVELE, Ndivhuwo Rodlet

BACHELOR OF SCIENCE IN AGRICULTURE MAJORING IN AGROMETEOROLOGY

RAS, Dànica

SIBIYA, Lungelo Innocentia

BACHELOR OF SCIENCE IN AGRICULTURE MAJORING IN AGRONOMY WITH AGRICULTURAL ECONOMICS

MAMABOLO, Mosima Thato

BACHELOR OF SCIENCE IN AGRICULTURE MAJORING IN ANIMAL SCIENCES

DISEKO, Thapelo Michael Gabriel

FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

BACHELOR OF SCIENCE IN AGRICULTURE MAJORING IN GRASSLAND SCIENCE

SMITH, Lukie Lombaard

BACHELOR OF SCIENCE IN AGRICULTURE MAJORING IN PLANT BREEDING

NIEMANN, Ruben Tait

BACHELOR OF SCIENCE IN AGRICULTURE MAJORING IN PLANT PATHOLOGY

MPANZA, Samukelisiwe Sbongakonke Sibusiso

BACHELOR OF SCIENCE IN AGRICULTURE MAJORING IN SOIL SCIENCE WITH AGRONOMY

MAKHUBO, Nomvula Ntombizodwa

BACHELOR OF SCIENCE IN AGRICULTURE MAJORING IN SOIL SCIENCES

NXUMALO, Nzuzo Sekunjalo

BACHELOR OF SCIENCE IN CONSUMER SCIENCE

MAHLOMOLA, Relebohile

MOTSEKI, Masabata Rosah

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY MAJORING IN COMPUTER SCIENCE AND BUSINESS

ARNOLD, Karl Albert Otto

SENZE, Siphesihle Mandisi

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY MAJORING IN COMPUTER SCIENCE AND BUSINESS MANAGEMENT

DIRETSE, Seipati Neriah

MABIZELA, Lefaso Bongani

MANDLELIZE, Lindokuhle Tracey

ZIMBA, Isaac

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY MAJORING IN COMPUTER SCIENCE AND PHYSICS

MOGASHOA, Nkete Johannah

TSHABALALA, Nobantu Lizbeth

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY MAJORING IN INFORMATION TECHNOLOGY AND MANAGEMENT

KOLOBE, Daniel Kamohelo

BACHELOR OF SCIENCE MAJORING IN BEHAVIOURAL GENETICS

JANSE VAN RENSBURG, Marené

KLAAS, Chuma

KRIEL, Natasha

NEL, Melissa

PHOKA, Retselisitsoe Ciccone

TAKALANI, Thembiso

BACHELOR OF SCIENCE MAJORING IN BIOCHEMISTRY AND FOOD SCIENCE

DITSHEGO, Rearabetswe

BACHELOR OF SCIENCE MAJORING IN BIOCHEMISTRY AND GENETICS

NDAYI, Fundiswa

BACHELOR OF SCIENCE MAJORING IN BIOCHEMISTRY AND MICROBIOLOGY

DANISA, Caroline Thuliswa
DLALISA, Dinewo Philisiwe
SEBOLAI, Emmanuel

BACHELOR OF SCIENCE MAJORING IN BOTANY AND ZOOLOGY

GROBBELAAR, Eduan

BACHELOR OF SCIENCE MAJORING IN CHEMISTRY AND BIOCHEMISTRY

MASHABA, Simphiwe
MCHUNU, Sbongakonke Gift

BACHELOR OF SCIENCE MAJORING IN CHEMISTRY AND FOOD SCIENCE

MOKHELE, Mamello Alison
RADEBE, Nkosikhona Wellington

BACHELOR OF SCIENCE MAJORING IN CHEMISTRY AND PHYSICS

SEREKO, Gosego

BACHELOR OF SCIENCE MAJORING IN ECONOMETRICS

MATSEMELA, Tshephang Morwaswi

BACHELOR OF SCIENCE MAJORING IN FORENSIC SCIENCE

MLATHA, Pilasande

MOKOENA, Khauhelo Teboho Godfrey

WILSON, Juliet Margaret

BACHELOR OF SCIENCE MAJORING IN GENETICS AND MICROBIOLOGY

MALEHO, Kearabetswe Oratile

MODISE, Onkgopotse

BACHELOR OF SCIENCE MAJORING IN GENETICS AND PHYSIOLOGY

KGOPODITHATA, Dimpho Rose

KHUMATAKE, Katlego Modisaotsile Kennedy

MOTUMISI, Blessing Tshegofatso

BACHELOR OF SCIENCE MAJORING IN GENETICS AND ZOOLOGY

MOTLOUNG, Zamatshaise Mbiheng Mbuso

BACHELOR OF SCIENCE MAJORING IN GEOGRAPHY AND AGROMETEOROLOGY

MAKGATA, Mahlako

BACHELOR OF SCIENCE MAJORING IN GEOGRAPHY AND ENVIRONMENTAL SCIENCE

CUBA, Thembela Lukhanyo

BACHELOR OF SCIENCE MAJORING IN GEOGRAPHY AND STATISTICS

NETHENGWE, Rinae Kingdom

BACHELOR OF SCIENCE MAJORING IN GEOLOGY AND GEOGRAPHY

MPONDO, Sinesipho Samantha

BACHELOR OF SCIENCE MAJORING IN MATHEMATICS AND MATHEMATICAL STATISTICS

VAN SCHALKWYK, Mari

BACHELOR OF SCIENCE MAJORING IN PHYSICS AND ASTROPHYSICS

MOCHEBELELE, Tlaba Paul

THOMPSON, Jozé Fidell

BACHELOR OF SCIENCE MAJORING IN PHYSICS AND ENGINEERING SUBJECTS

VERMEULEN, Jumar

BACHELOR OF SCIENCE MAJORING IN STATISTICS AND ECONOMICS

MOLEFI, Thabang Reabetswe

POSTGRADUATE DIPLOMAS

POSTGRADUATE DIPLOMA IN DISASTER MANAGEMENT

KAUSA, Abraham

MJOLI, Qhamani Bahlangule

POSTGRADUATE DIPLOMA IN INTEGRATED WATER MANAGEMENT

GQOTANA, Asanda

MALOKA, Motlalepula Newton

POSTGRADUATE DIPLOMA IN SUSTAINABLE AGRICULTURE

MABECE, Vuyiswa Euphonia

BACHELOR HONOURS DEGREES

HONOURS DEGREES

BACHELOR OF AGRICULTURE HONOURS MAJORING IN AGRICULTURAL ECONOMICS

NTAME, Nelisa

BACHELOR OF SCIENCE HONOURS IN AGRICULTURE MAJORING IN SOIL SCIENCE

NTOYI, Phila-Sande Prudent

RWEXANA, Abongile

BACHELOR OF SCIENCE HONOURS IN QUANTITY SURVEYING

VAN DER MERWE, Alwyn Johannes

BACHELOR OF SCIENCE HONOURS MAJORING IN BOTANY

LITHEKO, Boitumelo Thotloetso Seiphepo

MDAKANE, Lindokuhle Immaculate

RUFETU, Ellen Nyaradzo

BACHELOR OF SCIENCE HONOURS MAJORING IN CHEMISTRY

MOKAYANE, Tshepang Moratwe

BACHELOR OF SCIENCE HONOURS MAJORING IN GENETICS

NAIDOO, Alistair Wayne

BACHELOR OF SCIENCE HONOURS MAJORING IN GEOGRAPHY

VERE, Nompilo Lerato

BACHELOR OF SCIENCE HONOURS MAJORING IN GEOLOGY

MOSEKI, Tshepang Euphodia

ROUX, Hanneri

BACHELOR OF SCIENCE HONOURS MAJORING IN MATHEMATICS AND APPLIED MATHEMATICS

VENTER, Johannes Gerhardus

BACHELOR OF SCIENCE HONOURS MAJORING IN MICROBIOLOGY

RADIKAE, Khumo

BACHELOR OF SCIENCE HONOURS MAJORING IN POLYMER SCIENCE

BLOM, Xolani Innocent

BACHELOR OF SCIENCE MAJORING IN CHEMISTRY AND PHYSICS

MOFOKENG, Tahleho Alex

MASTER'S DEGREES

MASTER OF AGRICULTURE MAJORING IN AGRICULTURAL ECONOMICS

MYEKI, Vuyiseka Asiphe*

Title: FACTORS AFFECTING SMALLHOLDER LIVESTOCK FARMERS' AGRICULTURAL DROUGHT RESILIENCE TO FOOD INSECURITY IN NORTHERN CAPE PROVINCE, SOUTH AFRICA"

Supervisor: Prof YT Bahta

MASTER OF ARCHITECTURE

BENZANE, Karabo Sizan

HOFT, Dennis Harold

ISAACS, Scott Patrick

MASTER OF DISASTER MANAGEMENT

CHAUQUE, Mthembi

DANISO, Nqatyiswa

DIPHAGWE, Toyi Maniki Michael

KHUMALO, Jotham

MABENGU, Mabel Ncumisa

MAENETJA, Reneilwe Linah

MAKUA, Tshepo Innocent

MAPINGURE, Tendai

MAZIBUKO, Bafana Alfred

MOHOJE, Matshediso Eddith Alleta

NDLOVU, Tobias

TSEBE, Esther Shadi Morakane

WILLIAMS, Rebecca Jane

MASTER OF ENVIRONMENTAL MANAGEMENT

HEYNS, Lindi

MADONDO, Pamela

MAINAAKAE, Moatlhodiemang Patrick

MALOTOANE, Keneilwe Grace

MATODZI, Thanyelani Drusilla

MPOFU-NTAOTE, Nthateng Maria

MTHIMKULU, Mamokete Petunia

RAMAPUPUTLA, Peggy Seanokeng

RAMUNENYIWA, Rofhiwa

SHAW, Lize

TSHIPULISO, Naledzani

MASTER OF SCIENCE IN AGRICULTURE MAJORING IN AGRONOMY

CRONJÉ, Talana

Title: METHAM SODIUM FOR THE CONTROL OF VOLUNTEER POTATOES IN SOUTH AFRICA

Supervisor: Dr N. Mashingaidze

Co-supervisor: Dr J. Allemann

TANDATHU, Tabisa

Title: EFFECT OF BIOSTIMULANTS AND GLYPHOSATE ON MAIZE (Zea mays L.) GROWTH AND MICROORGANISM LEVELS UNDER CONTROLLED CONDITIONS

Supervisor: Dr. E van der Watt

Co-Supervisor: Dr. E Kotze

MASTER OF SCIENCE IN AGRICULTURE MAJORING IN ANIMAL SCIENCE

WESSELS, Ilanie

Title: THE EFFECT OF POPCORN (ZEA MAYS EVERTA) SCREENINGS AND ITS PHYSICAL FORM ON THE PRODUCTION PERFORMANCE OF FINISHING LAMBS

Supervisor: Dr. O.B. Einkamerer

Co-supervisors: Prof. A. Hugo and Dr. B van Zyl

MASTER OF SCIENCE IN AGRICULTURE MAJORING IN FOOD SCIENCE

MIYA, Sibongile*

Title: MUCILAGE: CHARACTERISATION OF PROTEINS AND CARBOHYDRATES RESPONSIBLE FOR CAPACITY AND STABILITY OF FOAM FOOD SYSTEMS

Supervisor: Prof Maryna de Wit

Co-supervisor: Dr Angeline van Biljon and Prof Eric Amonsou

MASTER OF SCIENCE IN AGRICULTURE MAJORING IN PLANT PATHOLOGY

MASISI, Thabiso Vincent

Title: ASSESSING THE EFFECT OF DECORTICATION ON SORGHUM GRAIN MOLD FUNGI AND CONCOMITANT MYCOTOXINS.

Supervisor: Dr L.A. Rothmann

Co-Supervisor: Prof N.W. McLaren and Dr M. Jackson

SPELMAN, Zizipho*

Title: PHENOTYPIC AND GENOTYPIC VARIATION OF PUCCINIA HORDEI IN SOUTH AFRICA

Supervisor: Prof W.H.P. Boshoff

Co-supervisor: Prof B. Visser

MASTER OF SCIENCE IN AGRICULTURE MAJORING IN SOIL SCIENCE

MC LEAN, Cowan Chatwin

Title: UPTAKE AND PARTITIONING OF SALT BY WHEAT AND MAIZE UNDER IRRIGATION IN A SEMI-ARID CLIMATE

Supervisor: Dr J.H Barnard

Co-supervisors: Dr G.M Ceronio and Prof L.D van Rensburg

SMIT, Isadore Edward*

Title: IMPACTS OF SOIL INFORMATION ON PROCESS BASED HYDROLOGICAL MODELLING IN THE UPPER GOUKOU CATCHMENT, SOUTH AFRICA

Supervisor: Prof JJ van Tol

MASTER OF SCIENCE IN CONSTRUCTION MANAGEMENT

KHATI, Maureen Gail Mukile

Title: AN ASSESSMENT OF OCCUPATIONAL HEALTH AND SAFETY COMPLIANCE CHALLENGES IN THE SOUTH AFRICAN CONSTRUCTION INDUSTRY

Supervisor: Prof. K. Kajimo-Shakantu

Co-supervisors: Mr HB Du Plessis and Dr JN Agumba

MASTER OF SCIENCE IN NANOSCIENCE

DHLAMINI, Khanyisile Sheer

MASTER OF SCIENCE MAJORING IN APPLIED STATISTICS

KWARAMBA, Nicholas Tichaona*

Title: MODELLING BIVARIATE EXTREME VALUE DEPENDENCE THROUGH A BAYESIAN APPROACH

Supervisor: Prof A Verster

MASTER OF SCIENCE MAJORING IN ASTROPHYSICS

BISSCHOFF, Brandon

Title: CONSTRAINING THE INTERGALACTIC MAGNETIC FIELD WITH *FERMI*-LAT OBSERVATIONS OF 7 HARD BLAZAR SOURCES.

Supervisor: Dr B. van Soelen

Co-supervisor: Prof P.J. Meintjes

MADZIME, Spencer Tendai*

Title: THE SEARCH FOR PULSED RADIO AND GAMMA-RAY EMISSION FROM THE CATACLYSMIC VARIABLE SYSTEM AE AQUARII USING MEERKAT AND FERMI-LAT DATA

Supervisor: Prof. P.J. MEINTJES

Co-Supervisor: Dr. H. J. VAN HEERDEN

MASTER OF SCIENCE MAJORING IN BIOCHEMISTRY

MATU, Andisiwe *

Title: A COMPARATIVE METAGENOMICS STUDY REVEALS VARIATIONS OF MICROBIAL COMPOSITION AND FUNCTIONALITY ASSOCIATED TO IRON AVAILABILITY IN OLIGOTROPHIC SCALDING SPRINGS OF SOUTH AFRICA

Supervisor: Dr. J. Castillo

Co-supervisors: Prof A. Valverde and Dr. E.D. Cason

TIYANI, Tarsisius Tichafunga*

Title: THE EFFECT OF ACTIVE SITE MUTATIONS IN CYP153A71 ON THE OXYFUNCTIONALIZATION OF SHORT-CHAIN ALKANES AND ALIPHATIC ALCOHOLS

Supervisor: Prof. DJ Opperman

Co-supervisors: Dr R do Aido Machado and Prof. M S Smit

VAN DER SCHYFF, Sophia Soveij

Title: AN INVESTIGATION INTO THE MOLECULAR BASIS OF THE REASSORTMENT OF ROTAVIRUS VP7, ENCODED BY GENOME SEGMENT 9

Supervisor: Prof. H.G. O'Neill

Co-supervisors: Dr. L.L. du Preez and Prof. A.A. van Dijk*

MASTER OF SCIENCE MAJORING IN BOTANY

MZIZI, Ngaka Peter

Title: Title: PHARMACOLOGICAL AND PHYTOCHEMICAL SCREENING OF TRADITIONAL MEDICINAL PLANTS USED AGAINST LYMPHATIC FILARIASIS IN THE FREE STATE, SOUTH AFRICA

Supervisor: Dr. P.J. Mojau

Co –supervisor: Dr. LV Komoreng, Prof MMO Thekisoe

MASTER OF SCIENCE MAJORING IN ENTOMOLOGY

MULAUDZI, Lugisani*

Title: DESICCATION AND STARVATION TOLERANCE IN THE BIOLOGICAL CONTROL AGENT, *NEOLEMA ABBREVIATA* (COLEOPTERA: CHRYSOMELIDAE)

Supervisor: Dr. F Chidawanyika

Co- supervisors: Dr. R Mutamiswa and Dr. C Zachariades

MASTER OF SCIENCE MAJORING IN ENVIRONMENTAL GEOLOGY

MASHAU, Dakalo

Title: IN-SITU STABILIZATION OF SPECIFIC TRACE ELEMENTS, ARSENIC AND SULPHATE IN THE GOLD MINE TAILINGS IN THE WITWATERSRAND BASIN FOR POST CLOSURE MITIGATION AND REMEDIATION

Supervisor: Dr R.N Hansen

MASTER OF SCIENCE MAJORING IN FOOD SCIENCE

MAKHALEMELE, Bonolo Lulu*

Title: THE MORPHOLOGICAL, PHYSIOLOGICAL AND PHYSICO-CHEMICAL EVALUATION OF NOPALITOS FROM TWENTY SOUTH AFRICAN CACTUS PEAR PLANTS

Supervisor: Prof. M de Wit

Co-supervisor: Dr. A Du Toit and Prof. A Hugo

MASTER OF SCIENCE MAJORING IN GENETICS

MAGLIOLO, Michelle*

Title: VALIDATION OF A SINGLE NUCLEOTIDE POLYMORPHISM MARKER SET FOR USE IN PARENTAGE VERIFICATION IN CHEETAH

Supervisors: Prof D Dalton, Prof P Grobler and Prof A Kotze

MASTER OF SCIENCE MAJORING IN GEOGRAPHY

CHAMANE, Lungelo

Title: AN ASSESSMENT OF COMMUNAL PROPERTY ASSOCIATIONS AND LEGAL TRUSTS AS LANDHOLDING INSTITUTIONS FOR LAND REFORM BENEFICIARIES IN NORTHERN KWAZULU-NATAL

Supervisor: Mrs. T.C Mehlomakhulu

MASTER OF SCIENCE MAJORING IN GEOHYDROLOGY

MABOTJA, Phuti Hemilton*

Title: THE DEVELOPMENT OF GROUNDWATER TRANSPORT MODEL USING CAPUTO-FABRIZIO AND ATANGANA-BALEANU FRACTIONAL DERIVATIVES WITH JULIA MAPPING

Supervisor: Prof A Atangana

MANUNDU, Siphokazi*

Title: THE DUAL POROSITY MODEL

Supervisor: Prof A Atangana

MASHAMBA, Mulalo Theophillus*

Title: INVESTIGATION OF GEOLOGICAL CHARACTERISTICS AND HYDROGEOCHEMICAL PROCESSES WITHIN THE TULI KAROO TRANSBOUNDARY AQUIFER SYSTEM IN SOUTH AFRICA

Supervisor: Prof. M Gomo

MUNONDE, Ndivho Knowledge

Title: GEOHYDROLOGICAL AND GEOCHEMICAL CONTAMINATION INVESTIGATION: CHARACTISATION, ANALYSIS AND REMEDIATION STRATEGY

Supervisor: Dr A Allwright

TURNER, Cameron Clive

Title: INVESTIGATION OF REMEDIAL OPTIONS FOR A CONTAMINATED SITE NEAR PRETORIA BY MEANS OF A NUMERICAL TRANSPORT MODEL

Supervisor: Dr A Allwright

MASTER OF SCIENCE MAJORING IN GEOLOGY

FERREIRA, Marcelle

Title: ASSESSMENT OF NITRATE CONTAMINATION AT THE KROONDAL MINES IN RUSTENBURG

Supervisor: Dr RN Hansen

MASTER OF SCIENCE MAJORING IN MATHEMATICS

SWARTZ, Elize*

MASTER OF SCIENCE MAJORING IN MICROBIOLOGY

JAMIU, Abdullahi Temitope*

Title: INFLUENCE OF POLYUNSATURATED FATTY ACIDS ON FLUCONAZOLE SUSCEPTIBILITY AND DRUG EFFLUX IN *CANDIDA KRUSEI*

Supervisor: Prof. C.H. Pohl-Albertyn

Co-Supervisors: Prof. J. Albertyn and Mr. E. Bisschoff

VAN DER MERWE, Culien

Title: INVESTIGATION INTO THE INVOLVEMENT OF GENES ENCODING ALLANTOATE PERMEASE IN *CANDIDA ALBICANS* STRESS RESISTANCE

Supervisor: Prof. J. Albertyn

Co-supervisors: Prof. C.H. Pohl-Albertyn and Dr R. Fourie

MASTER OF SUSTAINABLE AGRICULTURE

ANDREAS, Rosa Fatima

BABA, Nkululeko Amos

BRUWER, Pieter Willem*

DASTILE, Mzwethu

DLAMINI, Nokuphiwa Tisitile

DYAN, Nokubonga

GIWU, Mongezi

HEJE, Nomazulu

IMANA, Christopher Aletia*

JACA, Mfundo

JACOBS, Johannes Lodewicus

KACELO, Namasiku Faith

KEKANA, Hope

KEKANA, Kendy Sello

KHUMALO, Thobeka Nonkululeko

KOLOBE, Malesela Johannes

KOMA, Masego Jacqueline

KUMALO, Nondumiso Faith

LANGAZANE, Steven Samkelo

MABUZA, Karabo Precious*

MADELA, Lindokuhle Anson

MAELE, Keabetswe Tshegofatso*

MAHLAULE, Vutivi Olga

MAKI, Daniel Mbulelo

MARAWU, Solomzi

MAROO-MASEKO, Keamogetsoe Ipeleng*

MATAM, Yanga

MATHABELA, Nosikelelo Progress

MBANGISWANO, Sive Zintle Masimbonge

MBEDZI, Locabia Ntombikayise

MBILI, Nonsindiso Veronica
MBONYEYA, Jeremiah
MDLETSHE, Philani Omega
MIYA, Nobuhle Phumelele Agnes
MKHUNGO, Sbongiseni*
MNGUNI, Ntombencinci
MOLOSIWA, Boipelo
MOSIUOA, Ntseboheleng Gladys
MOTANKISI, Mohapi Obed
MOTSAPI, Joseph Motsamai
MTAMZELI-CEKISO, Nangamso
MTUMTUM, Luyolo
MZOLA, Qeqeshwa
NDABA, Vuyo Godfrey
NETILI, Khumbelo
NGHATSANE, Malebitsi Rebecca
NGXABI, Yamkelani Lukhona
NKUNA, Andries Agrippa
NUHU, Sakibu
SELAULA, Ruth Margaret
SISUSA, Yonela
TASANA, Sivuyile Promise
THONONDA, Lufuno Evans
TWALA, Sizwe Freddy
UPENDURA, Elvid
VILI, Cwaka
XHOMFULANA, Vumile Xhomfulana

MASTER OF URBAN AND REGIONAL PLANNING

SOQAKA, Luyanda

DOCTORAL DEGREES

DOCTOR OF PHILOSOPHY MAJORING IN AGRICULTURAL ECONOMICS

STRAUSS, Johann Stephanus

Johann Stephanus Strauss was born on 14 October 1962 in Upington and matriculated from Groblershoop High School. He obtained a BSc Agric Honours degree at the University of the Free State (UFS) in 1985, and an MSc Agric degree at the University of Pretoria in 1991 (cum laude). He has worked as an agricultural economist and derivatives trader at various companies and is currently a lecturer at the UFS.

With his thesis, **AN ALTERNATIVE PRICING METHOD FOR PHYSICALLY SETTLED MAIZE FUTURES CONTRACTS ON THE JOHANNESBURG STOCK EXCHANGE**, the candidate contributes to the field of commodity futures research for evaluating commodity futures physical settlement pricing systems. A grain flow model was developed to test and compare the existing JSE location differential calculation system for maize against other physical futures settlement methods. None of the evaluated systems could satisfy the requirement of total price indifference at delivery points and thus indicates the need for a customised system for the pricing of physically delivered maize futures. A location differential system that would ensure price indifference and address the problems with the current maize location differential system was therefore developed. The South African Location Differential (SALD) system solves current convergence problems, has numerous par delivery points, and, most importantly, is a close approximation of what cash market prices would look like.

Promoter: Dr F.A. Maré, Dr D.B. Strydom

DOCTOR OF PHILOSOPHY MAJORING IN BIOCHEMISTRY

CHEN, Jou-An

Jou-an Chen was born in Bloemfontein on 06 October 1988. She received her secondary education in Grahamstown, where she matriculated at Kingswood College in 2006. She obtained the degree BSc Biochemistry in 2010, Hons (Biochemistry) in 2011, the degree MSc (Biochemistry) in 2013 at the University of the Free State. She started her career as a company

director in Bloemfontein in 2015. She is also currently appointed as CEO of ETERCORE INVESTMENT HOLDING PTY LTD in Bloemfontein in the Free State.

With her thesis titled, **SCOPING AND QUANTIFICATION STUDY OF EMERGING CONTAMINANTS IN THE FREE STATE: EFFECTS ON MICROBIAL DIVERSITY**, the candidate contributes to expand our knowledge and understanding of the co-occurrence patterns between emerging contaminants and bacterial community structure from water bodies of the Free State region. In addition, she evaluates the acute toxicity of the most prevalent emerging contaminants on different trophic levels (i.e., bacteria, algae, and fish). The results indicated that 1) several ECs are present in water bodies of the Free State region, 2) they are toxic for the different trophic levels, and 3) they are difficult to be degraded by indigenous bacterial communities. Therefore, this study provides evidence on the risk of these recalcitrant compounds and proves valuable for decision-making to improve water quality management.

Promoter: Prof A Valverde

Co-Promoter: Dr J Castillo, Dr ED Cason, Dr G Kemp

JACOBS, Cheri Louise

Cheri Jacobs was born on June 1 st, 1989 in Kimberley. She began her studies at the University of the Free State in 2008. In 2011, she obtained her B.Sc. in Biochemistry and subsequently completed her B.Sc. Hons in 2012. By 2015, she obtained her M.Sc. with distinction and was awarded best M.Sc. student in Biochemistry. In 2017, while pursuing her PhD, she won the best poster award at the 20th International Conference on Cytochrome P450 in Germany. She completed her PhD in 2021 and started her career at Paraxel, Bloemfontein, where she was appointed as a Project Specialist.

With her thesis titled, **STUCTURAL AND FUNCTIONAL CHARACTERISATION OF NEW BACTERIAL ALKANE HYDROXYLASES**, the candidate contributes to scholarship on cytochrome P450 monooxygenases, focusing on CYP153 alkane hydroxylases (CYP153s). While CYP153s are widely studied in biocatalysis, this study investigates four new members of the CYP153A subfamily capable of terminal hydroxylation of n-alkanes. Among the four new members are three natural self-sufficient fusion proteins. The functional characterisation of these four enzymes, serves as an indication of the value these enzymes hold for the selective ω-hydroxylation of aliphatic compounds due to the high potential for industrial application. The key achievement in this thesis was the crystallisation and structural characterisation of two CYP153 proteins. The structural characterisation is highly significant for this research because it substantially expands our understanding behind the high terminal regioselectivity of these enzymes.

Promoter: Prof. DJ Opperman

Co-Promoter: Prof. MS Smit, Dr. C Tolmie

DOCTOR OF PHILOSOPHY MAJORING IN CHEMISTRY

JANARDHANA, Divya

Divya Janardhana was born in India on the 3rd of December 1992. She matriculated at Karnataka, India in 2009. She received her Pre-University education at Karnataka, India in 2011. She obtained the degree BSc. Physics, Chemistry and Mathematics with first class in 2014 from University of Mysore, Karnataka, India, the degree MSc. (Chemistry) with first class in 2016 from University of Mysore, Karnataka, India, and the PhD in Chemistry in 2021 at the University of the Free State.

With her thesis **SYNTHESIS, CHARACTERIZATION, LUMINESCENCE, AND PHOTOCATALYTIC PROPERTIES OF UNDOPED AND RARE EARTHS DOPED Bi2O3**, the candidate successfully synthesized undoped a-Bi2O3 and a-Bi2O3:RE3+ (RE3+= Eu, Ho, Sm) using citrate sol-gel and co-precipitation methods. In the study she investigated the influence that the RE inclusion into the Bi3+ sites in the Bi2O3 crystal on the physical and chemical properties of the newly isolated products. She also determined the influence of RE3+ concentration on the structural, morphological, optical, and photocatalytic properties

of the lanthanides (Eu, Ho, and Sm) modified Bi2O3 structure. In addition, the study targeted the photocatalytic removal of organic dyes from pollutant water under UV-visible light and on enhancing the weak emission of Bi2O3 in the visible region by the doping of REs ions into the Bi2O3 matrix. 5 ISI accredited papers followed from her PhD.

Promoter: Prof. HC. Swart

Co-Promoter: Prof. W. Purcell

NKOE, Pheello Isaac

Pheello Isaac Nkoe was born on the 20th of August 1989 in Bultfontein. He matriculated from Rainbow High School (Bultfontein) in 2007. He obtained his Bachelors in Chemistry in 2012, Honours in Chemistry in 2013 and Masters in Chemistry in 2016 from the University of the Free State. He started his career as Clinical data coordinator at IQVIA from 2016 to 2018 whilst he continued to complete his PhD in Chemistry part-time at the University of the Free State. He is currently a part-time lecturer at the Tshwane University of Technology.

With his thesis titled: **PHOTOLUMINESCENCE AND STRUCTURAL EVALUATION OF O,O' AND N,N' BIDENTATE LIGANDS AND ITS RE(I) TRICARBONYL COMPLEXES**, the candidate makes a contribution to the field of coordination chemistry of Rhenium(I) tricarbonyl complexes and its potential application as anti-cancer drugs. The study includes the synthesis of novel ligand systems as well as its metal complexes and the characterisation thereof. The evaluation of the mechanism of the methanol substitution reaction of Re(I) tricarbonyl complexes (with N,N' and O,O' coordinated bidentate ligands) with different entering monodentate ligands, by means of a comprehensive kinetic study and the isolation and characterisation of the end products, was also completed. The photoluminescent properties (liquid and solid state) of the ligands and the Re(I) tricarbonyl complexes were evaluated and excellent results were obtained which proved that some of these ligands and metal complexes could potentially act as PDT agents and should be investigated further.

Supervisor: Dr M Schutte-Smith

Co-Supervisor: Dr A Brink

DOCTOR OF PHILOSOPHY MAJORING IN DISASTER MANAGEMENT

NYAM, Yong Sebastian

Yong Sebastian Nyam was born in Njinikom, Northwest province, Cameroon on 04 July 1990. He received his secondary education in Bafut Northwest province, Cameroon where matriculated at Community Technical and Community College (COTECC) Bafut with ordinary and advance levels in 2008. He obtained a Bachelor of Science (BSc) in Economics from the University of Buea, Cameroon in 2012. He obtained a Master's of Science degree in Agriculture with specialisation in Agricultural Economics with Distinction from the University of the Free State in 2016. He was appointed as a research assistant in the department of Disaster Management from 2018 till 2020. He is currently a postdoc fellow at DiMTEC

In his thesis **"MODELLING SUSTAINABLE AGRICULTURAL WATER RESOURCES MANAGEMENT IN SOUTH AFRICA USING APPLIED SYSTEM DYNAMICS"**, the candidate developed qualitative and quantitative system dynamics models capable of generating relevant policy-base scenarios and intervention strategies for the sustainability of water management and resilient food systems in South Africa. The qualitative system dynamics models developed in this study captured underlying feedbacks structures inherent in complex systems thereby making them valuable for sustainability planning and policy formulation. The quantitative model developed in this study is important for improving the general understanding of water resources management and agricultural sustainability in the catchment. The findings of this study have demonstrated the merits of using system dynamics approach for solving problems in complex systems. The findings suggest that using a participatory stakeholder approach for developing solutions to complex system problems could be invaluable as those directly affected by the problem are involved in developing solutions to the problem

Promoter: Prof. A Jordaan, Dr. J Kotir, Prof. A Ogundeji

DOCTOR OF PHILOSOPHY MAJORING IN ENTOMOLOGY

CHIKOWORE, Gerald

Chikwore was born on the 13th of September 1983 in Guruve, Zimbabwe. He attained his Advanced level certificate at St Philips Magwenya High schools in 2002. He graduated with a BSc Honours in Agriculture at the University of Zimbabwe in 2006 and an MSc in Tropical Entomology which was awarded with Merit from the same institution in 2016. His career started in 2006 as a District Livestock Specialist in the Department of Livestock Production and Development in Insiza District, Zimbabwe before he moved to the Division of Tsetse Control in Harare as an Entomologist in 2007.

With his thesis titled **"BIOLOGICAL CONTROL PRE-RELEASE STUDIES ON THE ECOLOGICAL IMPACTS AND BIOTIC INTERACTIONS OF ROBINIA PSEUDOACACIA L. (BLACK LOCUST) WITH INDIGENOUS FAUNA AND FLORA IN SOUTH AFRICA"**, the candidate makes a contribution to the sustainable management of invasive alien plants and conservation of grassland ecosystems. Chikowore used a multidisciplinary approach to investigate the interactions between Robinia pseudoacacia, a problematic invasive alien species, and invaded ecosystems and communities. This work revealed that the species negatively affects grassland ecological systems and subsequent ecosystem services such as grazing and pollination. Furthermore, invaded communities do not significantly utilise the tree, thus recommendations for the sustainable management of the tree species. Several impacts quantified in this study can be used to prioritise the species for management as well as a baseline for evaluation of future management interventions.

Promoter: Dr F Chidawanyika

Co-Promoter: Dr GD Martin

DOCTOR OF PHILOSOPHY MAJORING IN GENETICS

PAMBUKA, Gilmore Taenzaniswa

Gilmore Taenzaniswa Pambuka was born on 21 March 1987 in Masvingo, Zimbabwe. He received his high school education at South Eastern College in Chiredzi between 2000 and 2005 and graduated with a BSc Hons in Agronomy at Midlands State University, Zimbabwe, in 2011. He attained an MSc in Plant Pathology from the University of KwaZulu-Natal, South Africa, in 2015. He was a research assistant at the University of KwaZulu-Natal followed by being an agronomist, consultant, and precision farming or GIS specialist in Zimbabwe. Currently he is a research scientist in the Research and Innovation division at Andermatt-PHP, South Africa.

With his thesis titled: **CHARACTERIZATION OF THE FUNGAL MICROBIOME OF A CEREAL-LEGUME INTERCROP SYSTEM USING ILLUMINA SEQUENCING**, the candidate characterized the mycobiome in plant tissues, the rhizosphere and in surrounding soil of five crops using next generation sequencing. Crops included a cereal (sorghum) and the legumes dry bean, soybean, cowpea and Bambara groundnut, planted in an intercropping trial. His research showed that the fungi found in these crops mostly belonged to cosmopolitan genera with wide host ranges that made up a core mycobiome. Most of these genera include plant pathogens but potentially beneficial fungi were also detected. Using the Illumina sequence approach, a high number of sequence isotypes were detected, which has serious implications for the accuracy of mycobiome research internationally. Knowledge generated from this project has the potential to be used to increase plant health of these crops in South Africa, as well as internationally.

Promoter: Dr M Gryzenhout

Co-Promoter: Dr ED Cason, Prof MM Nyaga

DOCTOR OF PHILOSOPHY MAJORING IN GEOGRAPHY

MTSHAWU, Babalwa

Babalwa Mtshawu was born on the 16th of January 1987 in Sterkspruit, Eastern Cape. She matriculated from Sterkspruit Secondary School in 2004. She graduated with a BSc degree in Environmental Geography at the University of the Free State

in 2010. In 2011 she obtained a BSc (hons) degree in Geography at UFS and an MSc degree in 2014 from the same University. She is currently appointed as a Geographical Information Systems and Remote Sensing lecturer at Stellenbosch University, Faculty of Military Science.

With her thesis, titled: **SPATIAL ESTIMATION OF SURFACE SOIL TEXTURE USING LANDSAT 8 DATA**, the candidate makes a contribution to the development of digital soil mapping efforts in data poor regions on a local to regional scale. Ordinary least squares regression (OLSR) and geographically weighted regression (GWR) were utilised to predict and assess the variability of surface soil texture. Data from Landsat 8 at surface reflectance (L8SR) was used as auxiliary variables and a limited number of ARC-ISCW legacy soil texture attributes as response variables. This research led to the development of a new Optimised Bare Soil Index (OBI), which provided a realistic depiction of the surface's soil texture. The use of L8SR was shown to reduce soil sampling efforts, therefore reducing soil mapping costs.

Promoter: Dr CH Barker

DOCTOR OF PHILOSOPHY MAJORING IN GEOHYDROLOGY

MAKHUTLA, Mokete Saladiel

Mokete Makhutla was born on 29 June 1977 in Bloemfontein, South Africa. He graduated with a BSc degree in mathematics and physics at the National University of Lesotho (NUL) in 1998. In 2004 he obtained his BSc honours degree in geohydrology followed by an MSc degree in geohydrology in 2009 both at the University of the Free State. His career as a geohydrologist began in 2004 and he rose through the ranks to become a principal geohydrologist and a researcher in both consulting and corporate settings.

With their thesis titled: **EVALUATION OF DNAPL PRESENCE IN FRACTRED-ROCK AQUIFERS USING INNOVATIVE FIELD SCREENING AND CONVENTIONAL SAMPLING TECHNIQUES**, the candidate evaluated the presence of Dense Non-aqueous Phase Liquid (DNAPL) in a typical fractured rock-aquifer using innovative FLUTe liner method in combination with conventional sampling-based techniques for DNAPL detection in soil, rock and fluid samples. This helps to improve the determination of DNAPL presence, detection and delineation in fractured-rock aquifers. A strategy for identifying and delineating DNAPL in a typical fractured-rock aquifer is proposed with the goal of improving the efficiency and cost effectiveness of remediating contaminated groundwater resources

Promoter: Dr M Gomo

VERMAAK, Nicolette

Nicolette Vermaak was born in Johannesburg on the 28th of September 1970. She completed her school career in Bloemfontein and matriculated from the Fichardtpark High School in 1988. She obtained a B.Sc. degree in 1991, a B.Sc.Hons. degree in 1993, an H.E.D. in 1997, a master's degree in environmental management in 2008 and a M.Sc. degree in Geohydrology in 2013 – all at the University of the Free State. It was during her almost 12 years at the Department of Water and Sanitation that the experience that she gained led to the formulation of her PhD thesis.

Her thesis titled; **MANAGEMENT STRATEGIES FOR THE LOWER BERG RIVER AQUIFER SYSTEM, WESTERN CAPE**. The research built on the previous exploration work done on the coastal aquifers in the Lower Berg River Valley from the early 1970s. It combined all the available information and the complete monitoring record for the Lower Berg River aquifer system to provide an understanding about the functioning of the complex groundwater system consisting of four aquifer units with various layers. This information was them used to produce an improved conceptual model for the study area. This was then used to propose an adaptive management strategy for the region involving all the relevant stakeholders to ensure the sustainable management of the groundwater system.

Promoter: Prof. P.D. Vermeulen

DOCTOR OF PHILOSOPHY MAJORING IN MICROBIAL BIOTECHNOLOGY

ROTHMANN, Christopher

Christopher Rothmann was born in Johannesburg, South Africa and matriculated Linden High School in 2006. He completed his Hons degree in 2012 in Microbiology, his Master degree in 2015 in Biotechnology and Mycology and his PhD in 2021 in Microbial Biotechnology at the University of the Free State. During his PhD studies the candidate started his own Biotech Company named LiquidCulture. Christopher is passionate about student entrepreneurship and is pursuing his personal goal of establishing more student entrepreneurs at the University of the Free State.

With his theses titled **"SOLID STATE FERMENTATION OF ACACIA MELLIFERA USING MUSHROOMS FOR VALUE ADDITION TO ANIMAL FEED"**, the candidate made a valuable contribution to the agricultural sector focussing on the biotechnological transformation of invasive tree species into value added animal feed using native mushrooms as the biological agents of transformation. Invasive tree species such as Acacia mellifera were digested using various mushrooms during solid state fermentation. The resulting substrate was analysed in vitro during rumen fermentation studies to determine possible increases in digestibility. Results indicated significant improvements in digestibility of the substrate, including increases in protein formation and degradation of indigestible components of the wood. The implications of this research are that during times of drought or fodder shortages, otherwise unusable feed sources, such as invasive tree species, could be used for livestock production.

Promoter: Prof BC Viljoen

Co-Promoter: Dr ED Cason, Dr OB Einkamerer,

DOCTOR OF PHILOSOPHY MAJORING IN MICROBIOLOGY

COETZEE, Marisa

Marisa Coetzee was born in Malmesbury, Western Cape, on 11 December 1987. She received her secondary education in Kimberley, Northern Cape, where she/he matriculated at Diamandveld Highschool in 2006. She obtained the degree B.Sc. Medical Microbiology in 2009, B.Sc. Microbiology Hons in 2010, the degree M.Sc Microbiology in 2013 and the PhD in Microbiology in 2021 at the University of the Free State.

With her thesis, **A PROTEOMIC OVERVIEW OF AVIBACTERIUM PARAGALLINARUM SEROGROUPS WITH FOCUS ON IMMUNOGENIC PROTEINS**, the candidate contributes to the knowledge base of the proteins found in Av. paragallinarum. Using Two-dimensional gel electrophoresis with liquid chromatography tandem mass spectrometry, Coetzee used the reference strains of different serogroups of Av. paragallinarum to obtain a proteomic overview of the extracellular and outer membrane proteins of Av. paragallinarum, focussing on immunogenic proteins. Although this was a preliminary study, and more research is required, it provides more global information of the pathogen, advancing knowledge regarding the mechanism of bacterial virulence, how the bacteria interact with the host cells, and therefore the pathogenesis.

Promoter: Dr CE Boucher-van Jaarsveld

Co-Promoter: Dr CW Theron, Dr G Kemp

DOCTOR OF PHILOSOPHY MAJORING IN PLANT BREEDING

MATOVA, Prince Mchapondwa

Prince Matova was born in Harare, Zimbabwe, on 13 January 1982. He obtained a BSc Honours degree (Crop Science) in 2005 and an MSc (Plant Breeding) in 2015, both from the University of Zimbabwe. He was a cowpea and maize breeder at the

Crop Breeding Institute in the Department of Research and Specialist Services (Zimbabwe) from 2006-2020 after which he joined Mukushi Seeds (Zimbabwe) as breeder. In September 2021, Prince was awarded the international prestigious "Young Scientist Award" from the joint FAO/IAEA division for the outstanding work he did in the past 10 years in mutation breeding of cowpea and maize

With his thesis **BREEDING OF MAIZE FOR FALL ARMYWORM RESISTANCE IN SOUTHERN AFRICA** the potential of resistance breeding as control strategy to the trans-boundary maize pest, fall armyworm (FAW), which invaded sub-Saharan Africa in 2016, was investigated. The pest threatens food security and livelihoods of regional smallholder farmers. Hybrids from exotic donors and locally adapted material, inbred lines and open pollinated varieties were evaluated under natural FAW infestation and chemically controlled conditions for stable FAW resistance. Commercial hybrids were susceptible to the pest, but inbred lines and experimental hybrids with good resistance were identified, which can be used for FAW resistance breeding. Mutation breeding was tested as a way to create FAW resistance and gamma radiation doses were optimized. The study concluded that effective FAW resistance can be attained using local and exotic genetic resources. Gamma irradiation is recommended to broaden genetic diversity for effective FAW selection.

Promoter: Prof. M.T. Labuschagne, Dr. C. Magorokosho

Co-Promoter: Dr. C. Kamutando

PHAKELA, Keneuoe

Keneuoe Phakela was born on 8 January 1981 in the Leribe District in Lesotho. She received her secondary education at St Agnes High School in Teyateyaneng, Lesotho. She obtained a BSc Agric in 2005 from the National University of Lesotho, followed by a BSc Agric Honours in 2011 and MSc Agric (cum laude) in 2017, both in Plant Breeding, from the University of the Free State. She started her career as a teacher in 2005 at St Agnes High School until 2017. She is a co-founder of the Research and Development Organization of Lesotho.

With her thesis titled **INFLUENCE OF SPECIFIC ABIOTIC STRESS FACTORS ON DURUM WHEAT GLUTEN PROTEINS AND THEIR RELATION WITH PASTA QUALITY** the candidate determined the effect of different levels of heat and drought stress in field experiments on gluten protein quantity and quality, using size exclusion- and reversed phase-high performance liquid chromatography and proteomics techniques. Highly up-regulated protein spots were analysed by liquid chromatography tandem mass spectrometry (LC-MS/MS). Drought and heat stress significantly altered the gluten protein composition, by up-regulating high molecular weight glutenins and α-gliadins. Low molecular weight glutenins and γ-gliadins were significantly reduced by stress conditions, which negatively impacted pasta quality, as γ-gliadins were strongly correlated with dough rheological properties. Some high molecular weight glutenins, gliadins, serpins, and β-amylase involved in carbohydrate metabolism, as measured by LC-MS/MS, were highly expressed under stress conditions. Genetic background significantly affected the expression of proteins, indicating that stress responses varied between genotypes.

Promoter: Prof MT Labuschagne

Co-Promoter: Dr A van Biljon, Dr B Wentzel, Dr C Guzman

DOCTOR OF PHILOSOPHY MAJORING IN SOIL SCIENCE

GURA, Isaac

Isaac Gura was born in Chivhu, Zimbabwe on 28 January 1988. He matriculated at Matinunura High School in Gweru, Zimbabwe in 2006. He obtained the degrees BSc Agric. (Honours) in 2014 and MSc Agric. in 2016 at the University of Fort Hare. He started his career as a laboratory assistant at the University of Fort Hare in 2013 and is currently a postdoctoral fellow at the University of the Free State.

In his thesis titled **"QUANTIFYING SOIL FERTILITY PARAMETERS WITH ELECTROMAGNETIC INDUCTION, INFRARED REFLECTANCE SPECTROSCOPY AND CONVENTIONAL CHEMISTRY PROCEDURES FOR MAIZE AND WHEAT UNDER IRRIGATION IN ARID CLIMATE"**, the candidate demonstrated that electromagnetic induction and infrared reflectance spectroscopy can be used successfully to measure some soil and crop attributes accurately. The two techniques are able to generate high spatial resolution data quickly on a continuous basis for precision farming which is impossible with conventional chemistry procedures. Both electromagnetic and infrared reflectance spectroscopy have limitations and data fusion is often required to improve reliability for better site-specific management of soil fertility and fertilization to produce maize and wheat more sustainably under irrigation. The study results demonstrated the superiority and efficiency of the sensor data fusion approach in the measurements of soil fertility properties and overall soil quality in irrigation systems of South Africa.

Promoter: Prof C C du Preez

Co-Promoter: Prof L D van Rensburg, Dr J H Barnard

DOCTOR OF PHILOSOPHY MAJORING IN SUSTAINABLE AGRICULTURE

KATJATENJA, Kaerumatua

Kaerumatua Katjatenja was born in Okakarara, Otjozondjupa Region, Namibia on 7 October 1985. He matriculated at Immanuel Shifidi Secondary School in 2004, He attained Natural Diploma in Agriculture from the University of Namibia (UNAM) in 2010, and He further obtained a Bachelor of Agriculture Management in 2013 and a Bachelor of Agriculture Management (Honors) in 2014 from Namibia University of Science and Technology (NUST). In 2016 a Magister in Sustainable Agriculture was obtained from the University of the Free State (UFS). He worked as an Agricultural Vetenirary Trainer at various Vocational Training Institutes under the National Training Authority (NTA) for more than 4 years and held a management position for more than 5 years in Agricultural Projects. In total, he has more than 10 years' working experience in various agricultural sectors.

With his thesis titled: **A STUDY TO INVESTIGATE THE CURRENT CONSTRAINTS AND CHALLENGES FACING SMALL RUMINANT PRODUCTION AND MARKETING IN OMAHEKE COMMUNAL AREAS – NAMIBIA**, the candidate makes a significant contribution to sustainable agriculture and development through the identifications of industrial problems associated with small-stock production and marketing at a Regional level. Using a systematic sampling method, 220 small stock farmers were identified to determine the limiting factors and provide solutions to the stem of ineffectiveness in small stock production and marketing. The results from the Multinomial logit model and marginal effect were consistent, robust and statistically significant to production inputs and choice of marketing channels, as they have significant influence on household income. Further analysis was performed in form of fixed and random effects to account for individual and cross-sectional interdependences among the constituencies; the results show that the significant variables have an influence on the choice of marketing channels in Namibia.

Promoter: Dr. GN Hangara

LOOCK, Daniel Jacobus Elardus

Daan Loock was born on 4th October 1972 in Witbank South Africa. He matriculated at FH Odendaal high school in 1991, and obtained his Baccalaureus Technologiae degree in Agricultural Management at the University of South Africa in 2007. Daan obtained his Magister degree in Sustainable Agriculture at the University of the Free State in 2011. His career in land management began in 2000 as land and biodiversity manager focusing on ecology.

With his thesis titled: **SUSTAINABLE MANAGEMENT OF FRAGMENTED LANDSCAPES CAN CONSERVE MESOCARNIVORE POPULATION (LEPTAILURUS SERVAL) A CASE STUDY**, the candidate makes a significant contribution to sustainable conservation through research that reports on the density and ecology of a mesocarnivore in industrial landscapes. Using camera trapping, disease surveillance, diet analysis and radio tracking the candidate untangled

the ecological and environmental factors affecting the serval population. The thesis reports on highest serval density every recorded (76-106 individuals / 100km2). Serval had the smallest home ranges recorded (1.700km2 – 5.200km2), and their diet was dominated by vlei rats (Ottomys spp.) Even though a large proportion were infected by viral pathogens, this is the first ever report on wild serval pathogen prevalence. The results of this study show the ecological and behavioral plasticity of felids that enable them to exploit man made areas and deepen our understanding on the effect of industrial intensification on mesocarnivores.

Promoter: Dr LH Swanepoel

Co-Promoter: Prof JA van Niekerk

MAJAJA, Matong Andries

Andries Majaja was born on the 27 September 1977 in Itsoseng Location of North West Province, South Africa. He matriculated at Bophirima High School in 1996 and later attained a Diploma in Agricultural Production at Taung Agricultural College in 2000. He graduated with B-Tech Degree, Agricultural Management at Central University of Technology (CUT) in 2001 and a master's degree in Sustainable Agriculture at the University of Free State in 2011. His career as agricultural practitioner began in 2003 at Kastern Farms and He rose through the ranks to become food security officer and later food security coordinator at Department of Agriculture, Land reform and Rural Development, Northern Cape Province.

With his thesis titled: **EVALUATING THE OUTCOME OF GOVERNMENT FUNDING AND SUSTAINABILITY FOR AGRICULTURAL COOPERATIVES IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA**, the candidate makes a significant contribution to sustainability and impact of funding by identifying major challenges associated with failure of agricultural cooperatives in the province. Using a mixed-method approach, Majaja sampled 15 agricultural cooperatives and 97 farmers in Northern Cape Province with the aim to explore the effectiveness of agricultural cooperatives in terms of understanding the challenges inhibiting good performance and sustainable ways of farming after benefiting from government support. Evidence corroborates that lack of coordinated government support, monitoring and evaluation are major factors complicating and confounding the failure of agricultural cooperatives. Basis of the findings concludes that agricultural cooperatives can sustain themselves if they properly plan and execute funding programs to enhance farm production including input funding which can significantly increase agricultural production in the Northern Cape Province

Promoter: Dr. C Botha, Prof JJ Van Niekerk

MYENI, Nonhlanhla Pretty

I'm originally from uMkhanyakude District at kwa-Hlabisa. I obtained my Bachelor of Science degree as well as Honours degree at University of Zululand. I then obtained my Master's degree at University of Free State. I also hold NQF7 in Project management which I obtained at Durban University of Technology. I have vast experience in working for both Public and Private sector. Currently I working as a Chief Director in the Department of Economic Development Tourism and Environmental Affairs in KZN responsible for implementing number of programmes within Rural and Township economic transformation programmes focusing on the entire agricultural value chain.

With her thesis **PROMOTING SUSTAINABLE AGRICULTURE AMONGST SMALL-SCALE FARMERS THROUGH FORMAL MARKET LINKAGES: THE CASE OF THE UMKHANYAKUDE DISTRICT MUNICIPALITY**, The purpose of this study was to explore conducive model for sustainable agriculture amongst uMkhanyakude District Municipality small-scale farmers through formal market linkages. In the summary the study looked at in an intensely competitive consumer goods sector, the designs for the routes to market that traders use to sell and deliver their products are essential. These designs enable profitable growth, service excellence, and consumer engagement at the point of sale. Furthermore, this study explored respondents' perceptions of their performance relative to customer requirements in order to better understand the farmers' performance gaps. The study was aimed at strengthening these small-scale farmers' market value chains and overall competitiveness. Through this research, this study contributes to the available literature on the ability of small-scale farmers to espouse corresponding critical success factors (CSFs) in value chains aimed at securing their livelihoods.

Promoter: Prof J. van Niekerk, Dr E. Mutambara

NOMBEMBE, Sakhiwo Wordsworth

Sakhiwo Wordsworth Nombembe was born on the 25th June 1975 at Rainy, outside Mthatha, Eastern Cape Province. He matriculated in 1994 at Shawbury High School. He completed his higher education in the following institutions: in 1999 he obtained his Bachelor of Agriculture at the University of Fort Hare and later obtained his Bachelor of Agriculture (Hons) also at the University of Fort Hare in 2000. He progressed and obtained his Master in Human Ecology at the University of South Africa in 2013. Dr Nombembe is oriented to goal-based sustainable development initiatives by applying unique, innovative and competitive technologies with a degree of excellence. Among his career that started in 2001, he served as a Provincial Coordinator at the University of South Africa and currently he holds a position as a Senior Manager at the Eastern Cape Parks and Tourism Agency.

With his thesis titled: **A STUDY OF HUMAN CAPITAL DYNAMICS AND ITS IMPACT ON THE SUSTAINABILITY OF SELECTED PROJECTS IN THE EASTERN CAPE**, the candidate makes a contribution towards modalities to earn the noble objective of sustainable development. The candidate investigated the human capital dynamics based on the perceived challenges related to human capital not yielding the desired outcomes. The study employed a mixed-method using primary longitudinal data from the employers and cross-sectional data from employees. The study found that human capital management systems pertaining to staff recruitment, staff retention and work conflicts have a significant contribution in projects not realizing their sustainable goals. Talent management was found critical to achieving business results under the challenging business climate. The Sustainable Community Economic Enhancement model was pertinent to advance strong partnerships between the experienced sectors with the development entities or projects to achieve their sustainable livelihood goals. These human capital dynamics prompted further investments in several modalities to earn the noble objective of sustainable development in business management, and their impact on the sustainability of projects in the real world.

Promoter: Dr JW. Swanepoel, Prof Dr Thakhathi

THOVHOGI, Rendani

Rendani Thovhogi was born on 22 June 1984 in Tshisahulu village, Limpopo province, South Africa. She matriculated at Dimani Agricultural High School in 2002 and later attained a bachelor's degree from the University of Venda in 2006. She graduated with an honour's degree from the University of Pretoria in 2012 and a master's degree from the University of Free State in 2016. Her career as a Senior Plant Health Officer began in 2009 and she rose through the ranks to become an Assistant Director: Plant Health Promotion, under the Directorate for Food Import and Export Standards of the Department of Agriculture, Land Reform and Rural Development.

With her thesis titled: **FARMERS KNOWLEDGE ON FRUIT PEST AND THEIR MANAGEMENT TOWARDS SUSTAINABLE AGRICULTURE IN THE THULAMELA MUNICIPALITY OF VHEMBE DISTRICT, LIMPOPO PROVINCE OF SOUTH AFRICA**, the candidate makes a significant contribution to sustainable agriculture through the development of a model for the sustainable management of pests in horticultural crops in Thulamela municipality. The sample size of the study was 40 extension officers dealing with plant production and 201 smallholder horticultural farmers. The results showed that pests are a challenge for smallholder horticultural farmers as they affect farmer's income, loss of marketable products, market restrictions, high costs of production inputs, production of poor-quality products and further affects the quantity of products produced. The study also produced two papers.

Promoter: Prof EM Zwane

Co-Promoter: Prof JA Van Niekerk

DOCTOR OF PHILOSOPHY MAJORING IN URBAN AND REGIONAL PLANNING

BILLAWER, Wilson Hungiree

Wilson Hungiree Billawer was born on 28 February 1973 in Otjiwarongo, Namibia. He matriculated at Concordia College in Windhoek in 1991 and graduated with a BSc degree at the University of Namibia (UNam) in 1994. He later obtained a

Master's Degree in Urban and Regional Planning from the University of the Free State in 2011 where his interest in indigenous knowledge systems began. He first worked as a town planning officer at the Walvis Bay Municipality, and later as a town planner at the City of Windhoek with a one-year part-time lecturer position at the University of Namibia.

With his thesis titled: **INDIGENOUS KNOWLEDGE, SPATIAL PLANNING AND PLANNING LEGISLATION: THE CASE OF WINDHOEK, NAMIBIA**, the candidate contributes to scholarship on Spatial Planning and indigenous knowledge systems (IKS), focusing on how urban planning and IKS can interact to improve impoverished urban settlements. Using a qualitative ethnological-phenomenological-case study approach, Billawer explored current planning practices in the low-income settlement of Havana in Windhoek, as well as two indigenous communities in the northern rural areas. The aim was to understand what strategies are used and how they are deployed in Windhoek to provide community open spaces in low-income urban areas, while simultaneously exploring spatial IKS from the two rural communities in how they conceive, utilise and maintain their important cultural open spaces. The argument presented is that spatial IKS, currently invisible in urban areas, could contribute to the improvement of low-income areas.

Promoter: Prof V Nel

DENOON-STEVENS, Stuart Paul

Stuart Paul Denoon-Stevens was born in Cape Town on 25 July 1985. He completed his BSocSci in Environmental and Geographical Science (distinction) and Sociology (2006), BSocSci (Honours) in Environmental and Geographical Science (2007), and Master's in City and Regional Planning (2010) at the University of Cape Town. He then spent close to five years working as a land use planner and researcher in industry. Since 2015 he has worked as junior lecturer and then lecturer in the Department of Urban and Regional Planning at the University of the Free State.

With his thesis titled: **THE ROLE OF LAND USE MANAGEMENT IN PROMOTING, OR HINDERING, SPATIAL TRANSFORMATION IN SOUTH AFRICAN URBAN AREAS**, the candidate contributes by developing new and refined approaches for land use management in the Global South. Through the five papers in this dissertation, the candidate presents various approaches to reform of land use management practice in South Africa, including expanding ideas of inclusionary housing into retail developments, recognising the complexity of African cities by developing land use approaches based on simple rules, and proactively upzoning land to encourage certain forms of urban development. The candidate also addresses both planning practice and education, making recommendations for how to support professional planners in delivering land use management services, and refining pedagogical approaches to planning so that students graduate with the ability to apply planning theories to land use management practices.

Promoter: Prof VJ Nel

DUBE, Tiisetso

Tiisetso Dube was born on 13 May 1969 at Manama Mission Hospital, Gwanda, Matabeleland South, Zimbabwe. He completed his Ordinary Level at Mzingwane High School and Advanced Level at Manama High School. He graduated with a BSc Honours and an MSc in Rural and Urban Planning from the University of Zimbabwe. His career as a planner began in 1993 when he was employed by the City of Bulawayo. He later joined a consultancy firm, Plan Africa, where he rose through the ranks to become a principal consultant. Tiisetso worked in Botswana as an expatriate physical planner, before returning to Zimbabwe in 2015 where he joined the Municipal Development Partnership. In June 2019, he joined the National University of Science and Technology where he is a lecturer.

With his thesis titled **EXPLORING URBAN DEVELOPMENT AND MANAGEMENT IN THE INFORMAL ECONOMY – THE CASE OF BULAWAYO, ZIMBABWE**, the candidate contributes to scholarship pertaining to land use planning, the urban informal sector and its impact on land use planning. Using a mixed method approach, Dube sampled 408 informal sector operators in three study areas and 11 key informants to understand and explain the role of the urban informal sector in terms

of the impact of local economic development on land use planning. The study findings revealed that the informal sector contributes significantly to the City of Bulawayo, and that the sector should therefore be integrated into land use management.

Promoter: Prof MM Campbell

Co-Promoter: Prof I Chirisa

DUNN, Mischka

Mischka Dunn was born in Queenstown on 22 December 1992. She received her secondary education in East London, where she matriculated at Hudson Park High School in 2011. She obtained a BA degree in Geography and Environmental Management in 2014, a Hons degree specialising in Spatial Planning in 2015 and a Master's degree in Urban and Regional Planning in 2016. All of which were obtained with distinction. She started her career as a lecturer in Bloemfontein in 2018 and was permanently appointed in the Geography Department at the University of the Free State.

With her thesis, **THE EXPERIENCE OF URBAN PLANNERS' PRACTICAL TRAINING IN SOUTH AFRICA**, the candidate makes a contribution to the Urban and Regional Planning field, by focusing on planners in South Africa who have completed the compulsory practical training experience for registration as professional planners. Original primary data was collected through interviews with 14 junior planners who have undergone the process of practical training, to record, document, analyse and understand their experience and perceptions of practical in-training as a prerequisite for professional registration. The constant comparison process was utilised throughout the research and was an effective method for developing theoretical codes, and ultimately, the development of a conceptual framework that explains the practical training experiences of young planners in obtaining their professional registration in South Africa.

Promoter: Prof V Nel

Co-Promoter: Dr H van der Berg, Dr E Van Huyssteen

DOCTOR OF PHILOSOPHY MAJORING IN ZOOLOGY

VAN DALEN, Elsie Maria Susanna Petronella

Elsie van Dalen was born in Randfontein on 7 May 1958. She received her secondary education in Pretoria, where she matriculated at Langenhoven High School in 1975. She obtained the degree B.Sc. in 1978 at the University of Pretoria and started her career as Assistant Professional Officer in Bloemfontein in 1979 at the Medical School of the University of the Free State. She continued her studies on a part time basis to obtain her B.Med.Sc. Hons in 1980 and M.Med.Sc. (Chemical Pathology) in 1982 both with distinction at the University of the Free State. In 2005 she was appointed as Lecturer in the Department Zoology & Entomology and obtained her PhD in Zoology in 2021 at the University of the Free State.

With her thesis **EVOLUTION OF ACARICIDE RESISTANCE STATUS AND ECOLOGICAL COMPETITION OF TWO RHIPICEPHALUS (BOOPHILUS) SPECIES ON COMMERCIAL FARMS IN SOUTH AFRICA**, the candidate contributes to the lack of information on resistance development of Rhipicephalus (Boophilus) tick species to chemical control as well as the introduction of R. microplus on commercial farming systems in South Africa. A tick resistance profile for the acaricides Amitraz, Cypermethrin and Chlorfenvinphos were determined for 549 tick populations collected from cattle over 14 years. A high prevalence of 90% for resistance to Cypermethrin of populations tested, an increase in Amitraz- and a decrease in Chlorfenvinphos resistant populations over time, were found. Closed commercial farming systems furthermore seemed to have a preventative advantage to the invasion of the alien species R. microplus. Results obtained highlighted the importance

of collaboration of testing laboratories, producers, the pharmaceutical industry, and government to assure sustainable food security provided by the cattle industry.

Promoter: Dr C Jansen van Rensburg

WARDJOMTO, Maliki Birosse

Maliki Wardjomto was born in Garoua, Cameroon on 16 July 1981. He completed his secondary education at Saint Theresa High School, Garoua in 2000. He obtained a National Diploma in Nature Conservation at Technikon Pretoria in 2003. He graduated with a BTech degree in Nature Conservation in 2006 and an MTech degree in 2014 at the Tshwane University of Technology. He started his career as Ecological Consultant in Cameroon in 2004 and later co-founded and led a Conservation NGO. He is currently employed as a Part-time Lecturer at the Tshwane University of Technology, and works as a Private Consultant.

With his thesis titled: **PREVALENCE OF AVIAN HAEMOSPORIDIAN PARASITES IN THE LOWVELD REGION OF SOUTH AFRICA**, the candidate makes a contribution to our understanding of the Afrotropical host-parasite relationships and also presents an opportunity to model as well as predict future parasitic pathogen patterns and possible outbreaks. Using a combination of microscopy and nested PCR, the study assessed the host and environmental drivers of infection as well as determined the diversity of avian haemosporidian parasites. Landscape parameters and avian host endemism were the main drivers of haemosporidian prevalence. Parasite diversity was high and positively correlated with host diversity. Fifty-six novel avian haemosporidians lineages were discovered. Haemoproteus lineages were mainly host specific whilst Plasmodium and Leucocytozoon lineages were generalists. These findings significantly improve our understanding of host-parasite relationship in birds as well as contribute new parasite lineages to our avian haemosporidian parasite database

Promoter: Dr M Ndlovu

Co-Promoter: Dr T Nangammbi

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.

CONGRATULATIONS FROM THE ALUMNI OFFICE

Congratulations on your graduation and best wishes for your next adventure!
We are very proud of you and your achievements.

KEEP CONNECTED

Alumni are a real measure of a university's brand, and we strive to keep you informed of the latest news about our young leaders, pioneers, and the projects emerging from the UFS. We do this through our online platforms, social media, publications like **BULT** and events such as the **Chancellor's Distinguished Alumni Awards**. We hope that you will keep connected with your alma mater by sharing your future achievements with our alumni community.

THE ALUMNI TEAM

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VOICES FROM THE FREE STATE

Voices from the Free State is a series of alumni-initiated and -led personal podcast narratives by outstanding alumni of the UFS who reflect on their experiences at the UFS, telling their stories, and explaining how their university years shaped their future and paved the way for their respective successes. Join the **Voices from the Free State** podcast series as we release a new podcast featuring a different alumnus on the first Monday of each month throughout 2021.

A CONNECTED COMMUNITY

We exist not only to keep you connected to your alma mater but to help you stay connected to each other. We encourage engagement and networking opportunities through virtual or hybrid events, informal visits, and guest lectures. You can connect with alumni globally and reconnect with former peers through the Alumni Office.

STRENGTHENING BONDS

We value your financial contributions, your time, your skills, and your networks. Strengthen your bond with your alma mater by becoming involved in mentoring, projects, events, and initiatives aimed at creating a fulfilling student and alumni experience for fellow UFS students and alumni. For more information on impactful projects or to donate, visit our **donations webpage**.

HERE FOR YOU

We are the Alumni Office team, and we are here for YOU. Stay connected with us via email, our **website,** or social media (**Facebook** and **LinkedIn**). Ensure that you update your details with us regularly so that we may celebrate your unfolding journey and successes with you.

To update your details
online at **www.ufs.ac.za/alumni**
or email **alumni@ufs.ac.za**.
Include your date of birth, cellphone number, and full names.

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