GRADUATION CEREMONY

BLOEMFONTEIN CAMPUS

VISION 130
Renew and Reimagine towards 2034
EXCELLENCE

THURSDAY | 10 APRIL 2025 | 08:30

Faculty of Natural and Agricultural Sciences

Bachelor's degrees, honours degrees, master's degrees, and doctoral degrees

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

PROGRAMME

10 APRIL 2025 | 08:30

BLOEMFONTEIN CAMPUS

CONSTITUTION OF THE CONGREGATION

OFFICIAL WELCOME

MUSICAL ITEM

PRESENTATION OF CANDIDATES

CONGRATULATORY MESSAGE

NATIONAL ANTHEM OF SOUTH AFRICA

DISSOLUTION OF THE CONGREGATION

PLEASE NOTE

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.

By attending the graduation ceremony, you agree that the UFS may use photographs taken by the official photographer in which you appear for marketing purposes.

By attending the graduation ceremony, you agree that the UFS may use video footage taken by the official videographer in which you appear for marketing purposes.

NATIONAL ANTHEM OF SOUTH AFRICA

Nkosi sikelel' iAfrika

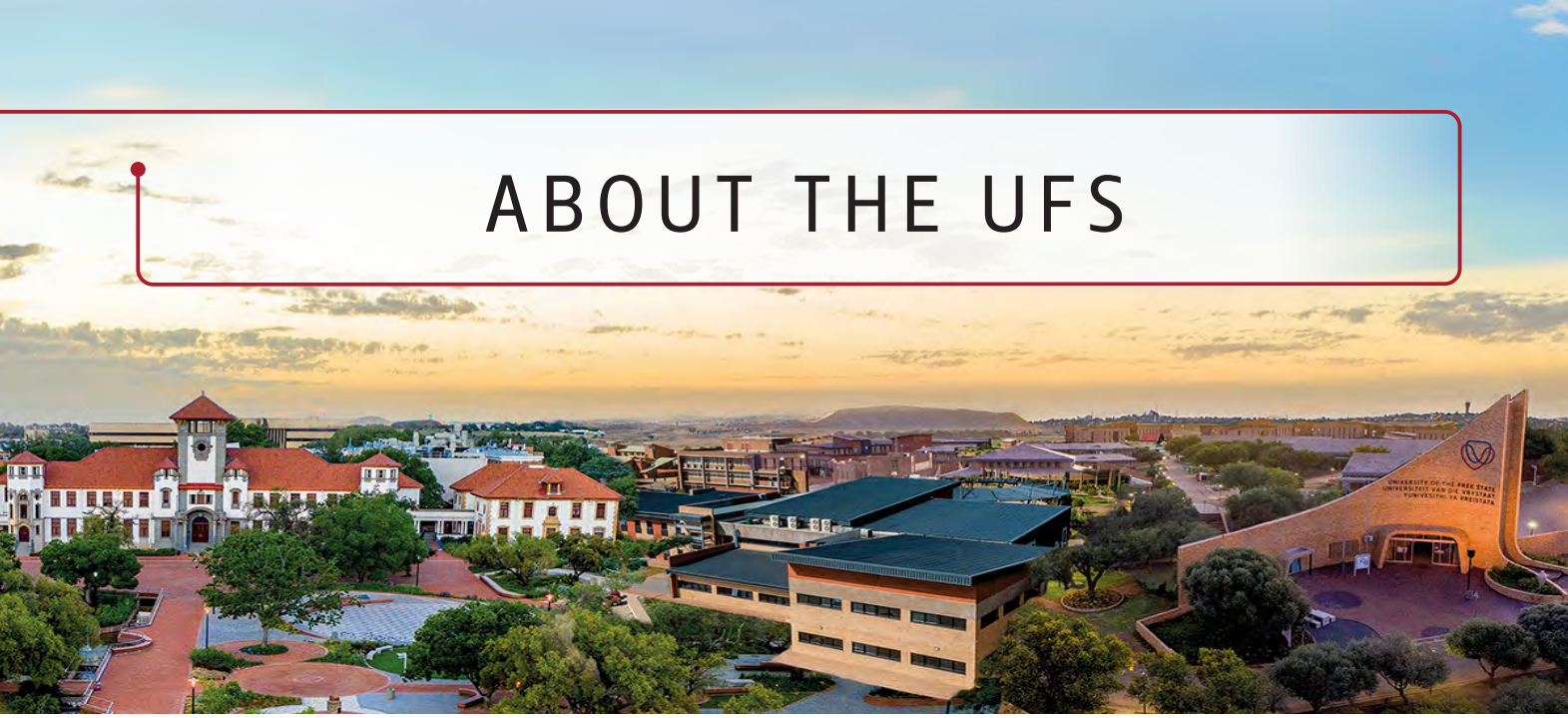
Maluphakanyisw' uphondo lwayo,
Yizwa imithandazo yethu,
Nkosi sikelela, thina lusapho lwayo.
Morena boloka setjhaba sa heso,
O fedise dintwa le matshwenyeho,
O se boloke, O se boloke setjhaba sa heso,
Setjhaba sa South Afrika –
South Afrika.

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.

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 put your cellphone on silent so as not to disturb the proceedings
- We strive to conduct the ceremonies in a dignified manner
- Please do not leave the hall before the graduation proceedings have been concluded
- Family and friends who are unable to attend may watch the full graduation ceremonies through our livestream link at *https://livestream.ufs.ac.za*

ABOUT THE UFS



BLOEMFONTEIN, QWAQWA, AND SOUTH CAMPUSES

The University of the Free State (UFS) has a proud history as one of the oldest 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 39 000 students in its seven faculties (Economic and Management Sciences, Education, Health Sciences, The Humanities, Law, Natural and Agricultural Sciences, Theology and Religion), with a significant number of international students and associates, and an ever-widening scope of active involvement in and contribution to its surrounding communities.

For the past 121 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.

The 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 university responds to societal needs by using its scholarly and professional expertise with an intentional public purpose and benefit.

The UFS is an institution that goes all out to provide its students and staff with an outstanding university experience. Everything the institution does is rooted in its values of excellence, innovation and impact, accountability, care, social justice, and sustainability.

The university aspires to be 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. Our *Vision 130* is an elaboration of our strategic intent to reposition the university for 2034, when we will commemorate our 130th anniversary.

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

UFS Honorary Awards | UFS 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 (Posthumous) – 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.)

2022 WK Byanyima – PhD (h.c.)
DM Davis – LLD (h.c.)
DE Moseneke – LLD (h.c.)
AL Sachs – LLD (h.c.)
MJ Wingfield – DSc (h.c.)

2023 M Musk – DDiet (h.c.)
A Ekwamu – DSc (h.c.)
D Pepler – DSc (h.c.)
PCJ Vale – PhD (h.c.)

2024 Salim Abdool Karim – PhD (h.c.)
Thabo Cecil Makgoba – PhD (h.c.)
Murray Leibbrandt – PhD (h.c.)
Bineta Diop – PhD (h.c.)

2025 RMM Zondo – LLD (h.c.)
T Falola – LLD (h.c.)
J Siwani – PhD (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)

2022 Dr N Pearce (Chancellor's Medal)
Mr N Janse van Rensburg (Council Medal)

2023 Prof MG Lötter (Chancellor's Medal)
Prof SC Brown (Council Medal)

MESSAGE FROM VICE-CHANCELLOR AND PRINCIPAL: UNIVERSITY OF THE FREE STATE

Welcome to the graduation ceremony of the University of the Free State (UFS).

Today is indeed a special day. Few occasions hold as much significance as your graduation, both for you and for those who have supported you along the way. Many of you have had to overcome numerous challenges during your journey to get to where you are today. Many of you are the first in your families to reach this significant milestone. You have earned this moment, and you should be extremely proud of your achievement.

Graduands, you have had the honour of studying at a 121-year-old institution. Always acknowledge and recognise the significance of your achievements as you transition from being a University of the Free State (UFS) student to a UFS graduate. I invite you to stay connected to your alma mater as a proud alumnus.

Although the mission of our university has always been to equip you with the knowledge and skills needed to make a difference in your field of study, we are also mindful that values are just as important for you to make a difference in your community. The University of the Free State places great emphasis on ensuring that students have an outstanding university experience. In our pursuit of excellence, we are proud that our environment is conducive to intellectual and personal growth. As such, our values of excellence, innovation and impact, accountability, care, social justice, and sustainability are embedded in all activities across the institution.

As you step into the world beyond the University of the Free State, remember that your education is a powerful tool. I urge you to use it to create positive change, to question the status quo, and to pursue your passions with determination. The future may seem uncertain, but it is filled with possibilities waiting for your unique talents and contributions. As you embark on your next adventure, carry with you the lessons you have learned and the courage to forge your own path.

Celebrate your success, cherish the memories, and embrace the opportunities that lie ahead. The world is yours to explore, and we cannot wait to see all the amazing things you will do and accomplish.

Congratulations to all our Kovsie graduands. May you have continued success in all your endeavours!

Best wishes

PROF HESTER C. KLOPPER

VICE-CHANCELLOR AND PRINCIPAL
UNIVERSITY OF THE FREE STATE

Welkom by die gradeplegtigheid van die Universiteit van die Vrystaat (UV).

Vandag is voorwaar 'n spesiale dag. Min geleenthede hou soveel betekenis in as 'n mens se gradeplegtigheid, sowel vir julle as vir diegene wat julle langs die pad ondersteun het. Baie van julle moes talle uitdagings te bowe kom tydens julle reis om te kom waar julle vandag is. Baie van julle is die eerste in julle gesinne om hierdie belangrike mylpaal te bereik. Julle het hierdie oomblik verdien en julle kan baie trots wees op jul prestasies.

Graduandi, julle het die eer gehad om aan 'n 121-jaar-oue instelling te studeer. Erken en herken altyd die betekenis van julle prestasies waar julle nou beweeg van studente van die Universiteit van die Vrystaat (UV) na UV-gegradueerdes. Ek nooi julle uit om as trotse alumni by julle alma mater betrokke te bly.

Alhoewel die missie van ons universiteit nog altyd was om julle toe te rus met die kennis en vaardighede wat nodig is om 'n verskil in julle studievelde te maak, is ons ook bedag daarop dat waardes net so belangrik is vir julle om 'n verskil in julle gemeenskappe te maak. Die Universiteit van die Vrystaat lê groot klem daarop om te verseker dat studente 'n uitnemende universiteitservaring het. In ons strewe na uitnemendheid is ons trots daarop dat ons omgewing bevorderlik is vir intellektuele en persoonlike groei. As sodanig is ons waardes van uitnemendheid, innovasie en impak, aanspreeklikheid, omgee, sosiale geregtigheid en volhoubaarheid ingebed in alle aktiwiteite oor die instelling heen.

Waar julle die wêreld buite die Universiteit van die Vrystaat betree, onthou dat opvoeding 'n kragtige hulpmiddel is. Ek moedig julle aan om dit te gebruik om positiewe verandering teweeg te bring, om die status quo te bevraagteken en om julle passies met vasberadenheid na te streef. Die toekoms lyk dalk onseker, maar dit is gevul met moontlikhede wat wag vir julle unieke talente en bydraes. Waar julle nou die volgende avontuur aanpak, neem die lesse saam wat julle geleer het, asook die moed om julle eie weg te baan.

Vier julle sukses, koester die herinneringe en omhels die geleenthede wat voorlê. Die wêreld is oop vir julle om te verken, en ons kan nie wag om al die wonderlike dinge te sien wat julle sal doen en bereik nie.

Baie geluk aan al ons Kovsie-graduandi. Mag julle volgehoue sukses in al julle ondernemings hê!

Beste wense

PROF HESTER C. KLOPPER

VISEKANSELIER EN PRINSIPAAL
UNIVERSITEIT VAN DIE VRYSTAAT

Re a le amohela moketeng ona wa dikgau le dikapeso tsa Yunivesithi ya Freistata (UFS).

Letsatsi la kajeno efela e le le ikgethileng. Ke diketsahalo tse mmalwa tse nang le bohlokwa jwaloka mokete wa hao wa dikapeso, molemong wa hao esita le bao ba nnileng ba o tshehetsa nakong ena yohle. Ba bangata ba lona ba ile ba lokela ho hlola diphephetso tse ngata nakong ya leeto lena ho tla fihla moo le leng teng kajeno. Ba bangata ba lona le ba pele malapeng a bolona ho fihlella mokolokotwane ona wa bohlokwa. Le sebeditse ka thata ho fihla nakong ena, mme le lokela ho ba motlotlo ka phihlello ena ya lona.

Lona boradikgau, le bile le tlotla ya ho ithuta yunivesithing e nang le dilemo tse 121. Kamehla le amohele le ho ananela bohlokwa ba diphihlello tsa lona ha le fetola maemo a ho ba baithuti ba Yunivesithi ya Freistata (UFS) mme jwale le se le ba boradikgau ba UFS. Ke le kopa ho dula le ikamahanya le mohlodi ona wa lona wa dikgau tsa thuto, le le boradikgau ba motlotlo.

Le hoja sepheo sa yunivesithi ya rona e nnile ya ba ho le hlomella ka tsebo le ka boitsebelo ba mesebetsi e hlokehang bakeng sa ho etsa diphetoho mafapheng a dithuto tsa lona, re ntse re tseba hore makgabane a molemo ho wena ho etsa diphetoho setjhabeng sa heno. Yunivesithi ya Freistata e hatella haholo ho etsa bonnete ba hore baithuti ba na le boiphihlelo bo hlwahlwa ka yunivesithi. Mabapi le kgothaletso ya rona ya boipabolo bo hlwahlwa, re motlotlo hore tikoloho ya rona e tshehetsa kgolo ya kelello le mahlale esita le ntshetsopele ya botho. Ka tsela e jwalo, makgabane a rona a boipabolo bo hlwahlwa, boitshimollelo, sekgahla, boikarabello, tlhokomelo, toka ya setjhaba, le tshwarello, di kenyeleditswe mesebetsing yohle ya institjushene kapa setsha sena sa thuto.

Ha e le mona le kena lefatsheng le ka nqane ho meedi ya Yunivesithi ya Freistata, hopolang hore thuto ke sesebediswa se matla. Ke le kopa hore le e sebedise ho sibolla diphetoho tse molemo, ho nahanisisa ka hohle ka maemo a bophelo a hona jwale, esita le ho ntshetsa pele ditabatabelo tsa lona ka boikemisetso. Bokamoso bo ka bonahala bo sa kgolwehe, empa bo tletse maemo a kgonahalo a emetseng dineo tsa lona tse ikgethileng esita le tsona diabo tsa lona. Ha le tswela pele ka sepheo sa lona se latelang bophelong, hlomellang ka dithuto tseo le ithutileng tsona le tshepo ya ho ipetlela tsela ho ya pele.

Ketekang katleho ya lona, thabelang mehopolo ya mahopotsane, mme le amohele menyetla e tlang. Lefatshe lena ke la lona hore le le sibolle, mme re ke ke ra emisa ho tadima ka tebello dintho tse makatsang tseo le tla di etsa le hona ho di fihlella.

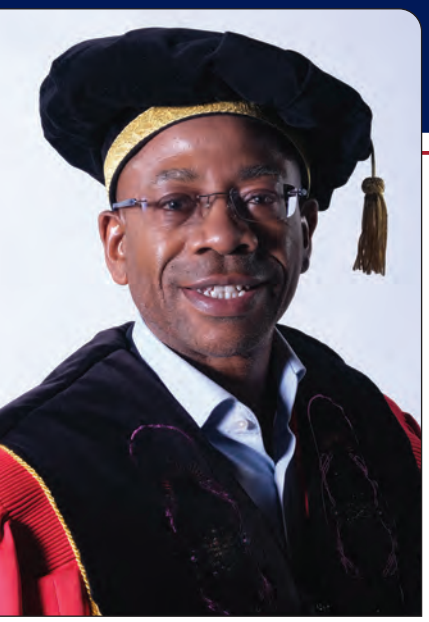
Ditakaletso tsa mahlohonolo ho baithuti ba rona ba Kovsie ba amohetseng dikgau. E se eka le ka ba le katleho e tswelapeng pele mererong yohle ya lona ya boiteko!

Madume

MOPROFESA HESTER C. KLOPPER

MOTLATSI WA MOTJHANSELA LE MOOKAMEDI
YUNVESITHI YA FREISTATA

OFFICE-BEARERS



Prof BF Mohale
Professor of Practice (JBS)
CHANCELLOR

Prof HC Klopper
PhD (UJ)
VICE-CHANCELLOR AND PRINCIPAL

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

Prof A Rhoda
PhD (UWC)
DEPUTY VICE-CHANCELLOR: ACADEMIC

Prof V Reddy
PhD (UKZN)
DEPUTY VICE-CHANCELLOR: RESEARCH AND INTERNATIONALISATION

Dr M Qhobela
PhD (KSU)
DEPUTY VICE-CHANCELLOR: INSTITUTIONAL CHANGE, STRATEGIC PARTNERSHIPS AND SOCIETAL IMPACT

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

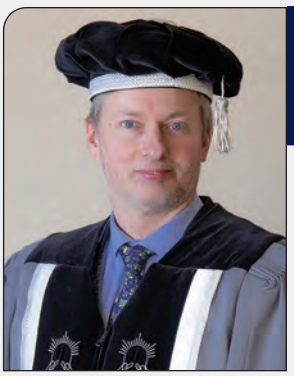
Ms M Nel
CA(SA) BAccHons (UFS)
CHIEF FINANCIAL OFFICER

Mr NN Ntsababa
MPA (NMU)
REGISTRAR

Prof P Ngobeni
DTech (TUT)
CAMPUS PRINCIPAL: QWAQWA CAMPUS

Mpho Maloka
ISRC: ACTING PRESIDENT GENERAL

DEANS

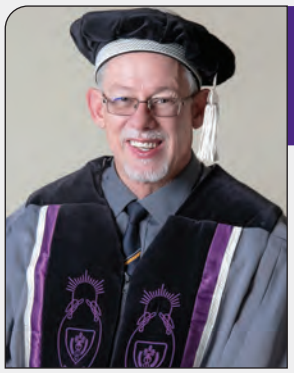


Prof P Burger
PhD (UFS)

DEAN:
ECONOMIC AND
MANAGEMENT SCIENCES

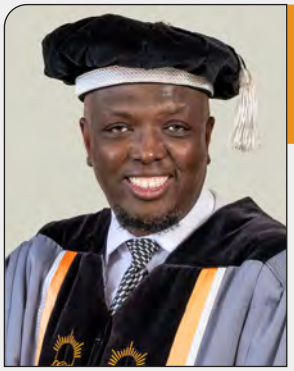
Prof LC Jita
PhD (MSU)

DEAN:
EDUCATION



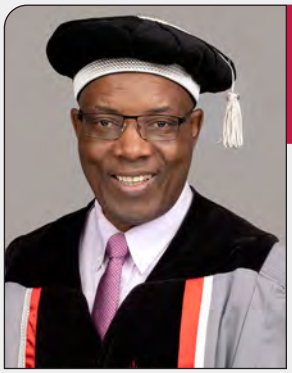
Prof GJ van Zyl
PhD (UFS)

DEAN:
HEALTH SCIENCES



Prof MA Masoga
PhD (UFS)

DEAN:
THE HUMANITIES



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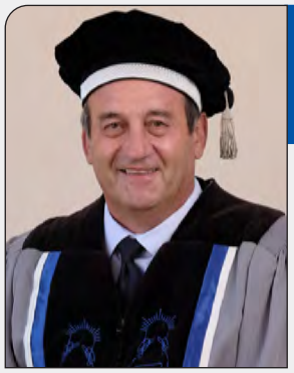

Prof P Oberholster
PhD (UP)

DEAN:
NATURAL AND
AGRICULTURAL SCIENCES

Prof JS Klaasen
DTH (US)

DEAN:
THEOLOGY AND RELIGION

EMMIE PIETERSEN

GUEST SPEAKER

Emmie Pietersen completed her undergraduate studies in Social Sciences at the University of the Free State in 1990. In 1997, she graduated with a master's degree in Clinical Social Science from the University of Johannesburg. She went on to obtain a Certificate in Organisational Development and Change Management from Pepperdine University and completed the Senior Executive Programme at the Harvard Business School in Boston, USA.

Before being appointed as the National Change Management Leader at Telkom in 1997, Pietersen managed various areas of specialisation in human resources. Exploring people-business processes and creating synergy between people and organisational strategy have intrigued her since then. This remained an area of both passion and interest to her and she has lectured part-time at the UFS Business School for more than a decade, both on PG Dip and MBA levels.

For the past 24 years, Pietersen has been the Head of Strategy and Programme Development at the Peritum Agri Institute, a training company she started in 2001 with partner Belinda Louw. In 2012, Peritum was registered as a private agricultural college and holds accreditation for various programmes with the Quality Council for Trades and Occupations as well as the Higher Education Quality Committee. Peritum Agri Institute is currently the largest private agricultural college in South Africa.

Emmie Pietersen is a specialist in strategy development and organisational development and design, who consults widely in the agricultural sector. She is also the co-author of a book on leadership in the African context, currently in its fourth review, and holds professional registration with the South African Board for People Practices as registered Master HR Practitioner.

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Dissertation Title: METHANE EMISSION FACTORS FOR

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BEEF CATTLE GENOTYPES IN FEEDLOT AND GRASS-FED PRODUCTION SYSTEMS, SOUTH AFRICA

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Co-Supervisor: Prof MM Scholtz

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Dissertation Title: ASSESSING MULTIPLE REGRESSION ANALYSIS (MRA) MODEL FIT FOR FORECASTING AIR TRAFFIC MOVEMENTS USING LOG TRANSFORMATION: A CASE STUDY ON ATNS AIR TRAFFIC MOVEMENT DATASET DURING COVID-19 PANDEMIC

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Dissertation Title: SUPPLEMENTARY WAVELENGTH CALIBRATION METHODS FOR SALT/RSS SPECTROPOLARIMETRIC OBSERVATIONS

Supervisor: Prof B van Soelen

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Dissertation Title: PROBING THE INNER JET REGIONS AND EMISSION MECHANISMS OF THE FLAT SPECTRUM RADIO QUASARS 3C 279 AND PKS 1510-089 THROUGH TEMPORAL AND SPECTRAL VARIABILITY STUDIES

Supervisor: Prof B van Soelen

Co-Supervisor: Dr RJG Britto

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Dissertation Title: CHARACTERIZATION OF THE KL4040 sCMOS FOR USE ON THE BOYDEN RESEARCH TELESCOPES

Supervisor: Dr HJ Van Heerden

Co-Supervisor: Prof B van Soelen

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Dissertation Title: GENETIC DIVERSITY OF PUCCINIA CORONATA FROM GRASSES AND CULTIVATED OAT IN SOUTH AFRICA

Supervisor: Prof B Visser

Co-Supervisor: Prof WHP Boshoff

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Dissertation Title: PLANT COMMUNITIES AND HABITAT CHARACTERISATION OF THE DRAKENSBERG-AMATHOLE AFROMONTANE FYNBOS (Gd6)

Supervisor: Dr AC Van Aardt

Co-Supervisor: Ms A Dayaram

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Dissertation Title: SYNTHESIS AND CHARACTERISATION OF TiO2 DOPED NANOPARTICLES FOR APPLICATION AS ANTIBACTERIAL AND ANTIMICROBIAL COATINGS FOR FREQUENT TOUCH AREAS

Supervisor: Prof HG Visser

Co-Supervisor: Prof M Schutte-Smith

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Dissertation Title: SYNTHESIS AND ANTI-CANCER ACTIVITY OF HETEROCYCLIC CHALCONE DERIVATIVES

Supervisor: Dr SL Bonnet

Co-Supervisor: Prof A Wilhelm

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Dissertation Title: SYNTHESIS OF UNNATURAL AMINO ACIDS USING NEGISHI CROSS-

COUPLING REACTION AND THEIR USE IN PEPTIDE SYNTHESIS

Supervisor: Prof V Azov

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Dissertation Title: MANAGING *LOCUSTANA PARDALINA* (WALKER) (ORTHOPTERA: ACRIDIDAE): EXPLORING ALTERNATIVE CONTROL METHODS AND ECOLOGICAL DRIVERS OF OUTBREAKS

Supervisor: Dr VR Swart

Co-Supervisor: Dr D Fourie

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Dissertation Title: ENVIRONMENTAL IMPACTS AND GEOCHEMICAL PROCESSES IN THE OKIEP COPPER TAILINGS'S A MODEL DEVELOPMENT AND CONFIDENCE BUILDING APPROACH

Supervisor: Dr RN Hansen

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TSILO, Lerato Juliett*

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Dissertation Title: BENCHMARKING OF THE CACTUS PEAR (*OPUNTIA FICUS-INDICA AND OPUNTIA ROBUSTA*) SEED OIL, AMONG OTHER VEGETABLE OILS, RELATIVE TO FOOD, NUTRACEUTICAL, AND COSMETIC APPLICATIONS

Supervisor: Prof M Boshoff

Co-Supervisor: Prof A Hugo

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Dissertation Title: THE IMPORTANCE OF OOMYCETES PHYTOPATHOGENS IN SOUTH AFRICA

Supervisor: Dr F Jami

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Dissertation Title: CHITINASE ACTIVITY OF PENICILLIUM SPECIES FROM MOUNDS OF THE SNOUTED HARVESTER TERMITE (TERMITIDAE: TRINERVITERMES TRINERVOIDES)

Supervisor: Prof M Gryzenhout

Co-Supervisor: Dr S Ghosh

MASTER OF SCIENCE MAJORING IN GEOGRAPHY

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Dissertation Title: NATURE-BASED SOLUTIONS IN URBAN AGRICULTURE FOR A SECONDARY CITY: CASE OF BLOEMFONTEIN, SOUTH AFRICA

Supervisor: Prof RA Matamanda

Co-Supervisor: Dr JI Bhanye

MOHALE, Ngwako Rabodiba Adam

Dissertation Title: CHARACTERISING SPATIOTEMPORAL PATTERNS, DRIVERS AND IMPACTS OF COLD EVENTS OVER LIMPOPO RIVER BASIN DURING WINTER SEASONS: 1979 TO 2021.

Supervisor: Dr S Roffe

Co-Supervisors: Dr AJ van der Walt and Dr R Rapolaki

NDIMA, Nosipho

Dissertation Title: GEOSPATIAL ANALYSIS OF URBAN PUBLIC GREEN SPACES: A CASE STUDY OF BLOEMFONTEIN CITY

Supervisor: Prof SAA Adelabu

Co-Supervisor: Dr CM Jackson

FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

MASTER OF SCIENCE MAJORING IN GEOHYDROLOGY

DEETLEFS, Melissa

Dissertation Title: A TEMPORAL AND SPATIAL ANALYSIS OF NITRATE CONTAMINATION IN THE SISHEN AQUIFER: SISHEN MINE, NORTHERN CAPE, SOUTH AFRICA

Supervisor: Dr PJH Lourens

KEJELENG, Mpho*

Dissertation Title: NUMERICAL MODELLING TO PREDICT THE IMPACT OF MINING ACTIVITIES ON WATER RESOURCES IN THE VICINITY OF KAROWE DIAMOND MINE

Supervisor: Prof FD Fourie

SWANEPOEL, Johan*

Dissertation Title: GEOHYDROLOGICAL INVESTIGATION AT AN UNLINED FINE TAILINGS STORAGE FACILITY FOR A CLOSURE PLAN AND POLLUTION PREVENTION MEASURES. A CASE STUDY: JAGERSFONTEIN MINE, FREE STATE, SOUTH AFRICA

Supervisor: Dr SS de Lange

Co-Supervisor: Dr PJH Lourens

TERBLANCHE, Marius

Dissertation Title: INVESTIGATING BULK WATER SUPPLY FROM EXISTING DEFUNCT OPENCAST AND UNDERGROUND MINE WORKINGS IN SOUTH AFRICA

Supervisor: Dr AJ Allwright

Co-Supervisor: Dr E Lukas

MASTER OF SCIENCE MAJORING IN INTEGRATED WATER MANAGEMENT

DIALE, Felicia Emily

LEGOTLO, Keneilwe Mothusi

MAHLAKO, Philasande Jane

MALLANE, Salemane

MVUYANE, Sinenhlanhla Accurate

NEMALILI, Sheila Khathutshelo*

NTANTA, Thandile Shaia*

RAMOSOEU, Thuto Agatha

Dissertation Title: RISKS OF AZITHROMYCIN, A COVID-19 DRUG, ON HUMAN HEALTH AND AQUATIC ECOSYSTEMS IN THE ORANGE-SENQU RIVER BASIN

Supervisor: Dr G Belle

Co-Supervisor: Dr EO Omotola

RAMUSIYA, Tshedza

ZIKHALI, Thembinkosi Timothy

MASTER OF SCIENCE MAJORING IN MATHEMATICAL STATISTICS

PRETORIUS, Wilben

Dissertation Title: A LONG-TERM STRUCTURAL COMPARISON OF MUSIC GENERATED BY GENERATIVE MODELS USING SELF-SIMILARITY MATRICES

Supervisor: Ms Z Ludick

Co-Supervisor: Prof MJ von Maltitz

MASTER OF SCIENCE MAJORING IN MATHEMATICS

STOFFBERG, Pieter Eduard

Dissertation Title: BANACH ALGEBRAS AND THE HOLOMORPHIC FUNCTIONAL CALCULUS

Supervisor: Dr Budde

MASTER OF SCIENCE MAJORING IN MICROBIOLOGY

BAKER, Tyla*

Dissertation Title: PILOT-SCALE WASTEWATER SURVEILLANCE FOR PATHOGENIC YEASTS IN MANGAUNG, SOUTH AFRICA

Supervisor: Prof CH Pohl-Albertyn

Co-Supervisor: Prof J Albertyn

BEAUZEC, Michael

Dissertation Title: ANTIMICROBIAL

FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

SUSCEPTIBILITY AND RESISTANCE OF THE BACTERIAL POPULATION IN A SEAFOOD PROCESSING FACILITY

Supervisor: Prof RR Bragg

Co-Supervisor: Ms SJ McCarlie

MOUKANGWE, Lebogang*

Dissertation Title: ACTIVATION OF THE SARS-CoV-2 VIRUS'S LATENT SPIKE GLYCOPROTEIN BY CANDIDA ALBICANS PROTEASES

Supervisor: Prof OM Sebolai

Co-Supervisors: Prof CH Pohl-Albertyn and Dr N Mjokane

MQAMBALALA, Avela*

Dissertation Title: FIRST INSIGHT INTO THE NATURAL ATTENUATION OF EMERGING CONTAMINANTS USING A METAGENOMICS APPROACH FROM DRINKING WATER SOURCES OF THE FREE STATE PROVINCE

Supervisor: Dr JC Castillo

Co-Supervisor: Prosf A. Valverde, and Prof K Moganedi

VANBAALEN, Casey Frederick Francois*

Dissertation Title: DEVELOPMENT OF A CRISPR-Cas9 GENE EDITING AND GENE REGULATION SYSTEM FOR *CANDIDA AURIS*

Supervisor: Prof J Albertyn

Co-Supervisor: Prof CH Pohl-Albertyn

MASTER OF SCIENCE MAJORING IN MINERAL RESOURCE MANAGEMENT

CHIVESE, Charity Chebgetai

KRUGER, Christiaan

MOTAUNG, Makubeng Flora

TYIRA, Mogoshadi Pontsho

MASTER OF SCIENCE MAJORING IN PHYSICS

ABDALLAH, Rajaa Abubaker Abuelgassim*

Dissertation Title: STABILITY INVESTIGATIONS OF RARE EARTH DOPED CaF_2 UNDER ELECTRON AND LASER BEAM IRRADIATION

Supervisor: Prof HC Swart

Co-Supervisor: Prof RE Kroon

MASHALANE, Alfred Odirile

Dissertation Title: OPTICAL AND STRUCTURAL PROPERTIES OF SPIN COATED Y2SiO5:Ce3+ THIN FILMS

Supervisor: Dr M Duvenhage

Co-Supervisor: Prof HC Swart

VAN DER WALT, Monica*

Dissertation Title: AN EXPERIMENTAL AND MOLECULAR DYNAMICS INVESTIGATION OF CuAg NANOALLOYS

Supervisor: Prof JJ Terblans

Co-Supervisors: Prof E Erasmus and Prof HC Swart

MASTER OF SCIENCE MAJORING IN PLANT BREEDING

PLATYI, Sisipho Sweetness

Dissertation Title: NUTRITIONAL COMPONENTS IN NEWLY DEVELOPED QUALITY PROTEIN MAIZE HYBRIDS UNDER OPTIMUM AND LOW NITROGEN CONDITIONS

Supervisor: Dr A van Biljon

Co-Supervisor: Prof MT Labuschagne

MASTER OF SCIENCE MAJORING IN RISK ANALYSIS

MASENA, Thabiso Ernest*

Dissertation Title: QUANTIFYING PANDEMIC EFFECTS USING INTERRUPTED TIME SERIES MODELS

Supervisor: Mr SC Shongwe

Co-Supervisor: Dr A Yeganeh

NETSHIOZWI, Unarine*

Dissertation Title: POLYNOMIAL PROFILE MONITORING SCHEME - A DATA-DRIVEN APPROACH USING INTERNET USAGE DATA

Supervisor: Mr SC Shongwe

Co-Supervisor: Dr A Yeganeh

DOCTORAL DEGREES

DOCTOR OF PHILOSOPHY MAJORING IN ASTROPHYSICS

VAN DER WESTHUIZEN, Izak Petrus

Sakkie van der Westhuizen was born in Bloemfontein on 1 June 1992. He matriculated in Bloemfontein at Hoerskool Jim Fouche in 2010. He obtained his B.Sc degree, B.Sc Hons, and M.Sc all with distinctions at the University of the Free State in 2013, 2014 and 2016, respectively. Finally, in 2024 he obtained his PhD in Astrophysics at the University of the Free State. He has been employed as a lecturer at the University of the Free State since 2020.

With his thesis titled: **THE MODELLING OF SYNCHROTRON EMISSION FROM ACTIVE GALACTIC JETS USING HYBRID RELATIVISTIC HYDRODYNAMIC SIMULATIONS,** the candidate makes a significant contribution to our understanding of how the observed radiation from jetted AGN is linked to their physical properties. Using fluid dynamic simulations, the candidate modelled kiloparsec-scale jets and incorporated both Lagrangian particle and ray tracing techniques to create synthetic emission and polarization maps of the non-thermal synchrotron emission, from radio to X-ray frequencies. The thesis demonstrated how different conditions lead to different morphological types of AGN namely; FR I or FR II type radio jets. The results also reproduced many of the observed characteristics of AGN jets including, quasiperiodic emission components in jets and bright filaments found in radio lobes. A paper on this work has been published in the journal MNRAS. The tools developed for this thesis can, in the future, be applied to other astrophysical environments.

Supervisor: Prof B van Soelen

DOCTOR OF PHILOSOPHY MAJORING IN BOTANY

HLAHLA, Jeremiah Mpumelelo

Jeremiah Mpumelelo Hlahla was born on 13-02-1998 in Nkomazi, Mpumalanga. He matriculated from Phillip Ndimande High School in eMalahleni (2013), where he received an Anglo-American award for the best learner and attended the SAICA's top learners camp. He holds a BSc degree (Life and Environmental Sciences) from University of Johannesburg (2017) and BSc Hons (Botany) from Nelson Mandela University (2018). He earned an MSc (Botany) with distinction from the University of Free State and received the E.M. van Zideren Bakker award for best MSc student. In 2024, he participated in a six-month Erasmus+ program at University of Debrecen in Hungary.

With his thesis titled: **PHYSIOLOGICAL, BIOCHEMICAL, AND MORPHOLOGICAL RESPONSES OF EDAMAME TO COMBINED DROUGHT AND HEAT STRESS,** the candidate contributes to the understanding of how edamame (Glycine max L. Merrill), an underutilized nutrient-rich legume in Africa, responds to the combined effects of drought and heat (DH) stress (an increasing challenge due to climate change). As a highly nutritious legume, it plays a crucial role in food security, making it essential to identify physic-biochemical mechanisms that support DH stress tolerance. This study shows that while some cultivars have reduced photosynthesis, disrupted carbohydrate metabolism, and weakened cell membranes under DH stress, others demonstrate resilience through efficient photosynthesis, improved regulation of oxidative stress, and reinforced cell walls, leading to better growth and yield. These findings offer valuable insights for breeding programs aimed at developing DH-tolerant varieties, serving as a key resource for creating climate-resilient edamame that supports sustainable agriculture and global food security.

Supervisor: Dr MJ Moloi

Co-Supervisor: Dr MS Mafa and Prof R van der Merwe

DOCTOR OF PHILOSOPHY MAJORING IN CHEMISTRY

Mawande, Nandisiwe Ghandi Sibongile

Nandisiwe Ghandi Sibongile Mateyise was born in Mcwangele Village, Nqanqarhu, in the Eastern Cape on 1 July 1990. She received her secondary education in Bloemfontein and matriculated from Bloemfontein South High School in 2010. She obtained a BSc degree in Chemistry in 2015, followed by a BSc Honours in Chemistry in 2017. In 2021, she earned her Master's in Chemistry with distinction and was awarded the Best Chemistry Student award. In 2024, she completed her PhD in Chemistry at the University of the Free State. Nandisiwe Mateyise has multiple articles published in international journals.

With her thesis titled: **EXPERIMENTAL AND COMPUTATIONAL CHEMISTRY STUDY OF TERPYRIDINES AND THEIR METAL COMPLEXES,** the candidate explored the redox behavior of substituted 2,2':6',2''-terpyridine ligands and their ruthenium(II), osmium(II) and nickel(II) complexes using cyclic voltammetry and Density Functional Theory (DFT). This research resulted in four publications. Experimental findings revealed that redox potentials are influenced by the electron-donating or electron-withdrawing nature of terpyridine substituents, quantified by Hammett constants. Furthermore, DFT successfully predicted and rationalized these redox behaviors, facilitating the design of complexes with tailored redox properties for applications in catalysis, redox mediators and dye-sensitized solar cells (DSSCs). These studies establish a framework for optimizing substituted terpyridine-metal complexes in various chemical and energy-related applications.

Supervisors: Dr MM Conradie-Bekker and Prof J Conradie

ODEWOLE, Olufemi Abiola

Olufemi Abiola Odewole was born in Lagos, Nigeria on 22nd October 1985. He received his secondary education in Ogun State, Nigeria, where he matriculated at Adeola Odutola College in 2004. He obtained his bachelor's degree in chemistry in 2010 at Olabisi Onabanjo University, the master's degree in chemistry in 2016 at University of Ilorin both in Nigeria and the PhD in Chemistry in 2025 at the University of the Free State, South Africa. He started his career as Assistant Lecturer in Enugu, Nigeria in 2016. He was appointed in the Department of Pure and Industrial Chemistry and at present he is Lecturer 1 at the University of Nigeria, Nigeria.

With his thesis titled: **EN ROUTE: OPTIMISATION OF REACTION CONDITIONS AND CO-CATALYST EMPLOYMENT TO FAVOUR GRUBBS SECOND GENERATION CATALYST MEDIATED CROSS-METATHESIS**, the candidate makes a contribution to the field of organometallic chemistry, specifically in the development and optimization of catalytic systems for olefin metathesis reactions.

With this contribution, the candidate systematically examines factors influencing catalyst efficiency, including additive/catalyst ratio, solvent effects, and type of phenol additives employed. The study provides insights into catalyst activation and reaction optimization, demonstrating the kinetic favourability of cross-metathesis under controlled acrylate excess and the role of solvent properties in modulating catalyst dissociation. Electrochemical and spectroscopic analyses reveal the electronic influence of phenol additives on catalyst stability and transformation

rates. By integrating these findings, the research advances the understanding of metathesis chemistry and provides practical considerations for industrial applications. The results of this investigation contribute significantly to catalyst design, enhancing efficiency and selectivity in metathesis reactions.

Supervisor: Prof E Erasmus

Co-Supervisor: Dr MR Swart

VISSER, Melanie

Melanie Visser was born in Noupoort on 26 November 1992 and matriculated at the Noupoort Combined School in 2010. She obtained a BSc in Chemistry, Physics and Biology in 2013, a BSc Hons in Chemistry in 2014 and an MSc in Chemistry in 2019, all at the University of the Free State. In 2014, Melanie also received the James Moir Medal and NAS award for Chemistry. She started her career as a Researcher at Chemical Process Technologies (API cluster laboratory) in Pretoria in 2023. At present, she is a Senior Chemist at PET Labs Pharmaceuticals in Centurion.

With her thesis titled: **CROSS-METATHESIS BASED TOTAL SYNTHESIS OF SUBSTITUTED DIHYDROCHALCONES,** the candidate makes significant contributions to the field of Synthetic Organic Chemistry. The candidate describes the development of a novel catalytic strategy towards dihydrochalcones from substrates that can be sourced from readily available sustainable resources. In addition, she describes the design of a straightforward approach to *C*-glycosides. The new methods were successfully applied to the multi-step synthesis of an active pharmaceutical ingredient.

Supervisor: Dr C Marais

Co-Supervisor: Prof BCB Bezuidenhoudt

DOCTOR OF PHILOSOPHY MAJORING IN GEOGRAPHY

NKUNA, Basani Lammy

Basani Lammy Nkuna, born on August 12, 1995, in Xitlakati Village, Giyani, Limpopo, South Africa, is a doctoral candidate in Geography at the University of the Free State. She matriculated in Jim Chavani High School (2013), She earned her BA in Geography and Anthropology from the University of Johannesburg (2018), an Honours in Geography from UN/SA (2019), and a Master's in Geography from UFS (2021). She began her career in 2018 as an intern at the Agricultural Research Council (ARC) and later joined its Postgraduate Development Program (PDP). Her research focuses on remote sensing and machine learning for maize disease detection in smallholder farming systems.

With her thesis titled: **DEVELOPING MODELS FOR DETECTING AND MONITORING MAIZE DISEASES IN SMALLHOLDER FARMS IN LIMPOPO, SOUTH AFRICA,** the candidate makes a contribution to advancing remote sensing and machine learning applications in precision agriculture. With this contribution, she attempts to improve the early detection and monitoring of maize diseases affecting smallholder farmers, enabling timely interventions to mitigate crop losses. The findings of this investigation serve as an indication of the value this type of intervention holds for addressing food security challenges and enhancing sustainable farming practices in smallholder systems.

Supervisors: Dr AJ Van Der Walt and Dr A Nyamugama

Co-Supervisors: Prof SW Newete and Prof JG Chirima

DOCTOR OF PHILOSOPHY MAJORING IN GEOHYDROLOGY

CHAKA, Venoliah Disebo

Venoliah Disebo Chaka was born in Botshabelo on the 16th of February 1997. She matriculated in 2014 from Senakangwedi Senior Secondary school. She obtained both her undergraduate degree in Geology and Honours degree in Geology from the University of the Free State. She furthered her studies and completed her master's degree in Geohydrology which she completed in 2020.

With her thesis titled: **MODELLING GROUNDWATER FLOW IN DUAL MEDIA WITH STOCHASTIC AND GLOBAL DIFFERENTIATION,** the candidate makes a significant contribution to groundwater flow problem in heterogeneous aquifers. In her work, fractional calculus is employed using Caputo-Fabrizio and Atangana-Baleanu derivatives to overcome the limitations of classical models and capture the complex dynamics of groundwater in dual media. By deriving fractional groundwater flow equations and analyzing crossover behavior among distinct hydraulic phases including rock matrix, fault-affected zones, and fractured media she develops robust numerical solutions. These simulations, based on advanced numerical methods, reveal the impact of geological heterogeneity on basin-scale flow dynamics and provide a realistic framework for sustainable groundwater management.

Supervisor: Prof A Atangana

HAUMANN, Jacobus Wilhelmus

Dr. Jacobus Wilhelmus Haumann was born on 2 April 1991 in Nelspruit, Mpumalanga. He matriculated at Grey College, Bloemfontein, in 2009 and obtained a BSc in Environmental Geography (2013), BSc Honours in Geohydrology (2014), MSc in Geohydrology (2016), and PhD in Geohydrology (2025) at the University of the Free State. He is the Managing Director and Senior Hydrogeologist at Sustainable Geohydrological Solutions (SGHS), specialising in groundwater development, environmental impact assessments, and geophysical exploration. His work focuses on hydrogeological consulting, resource management, and regulatory compliance, contributing to sustainable water solutions for industrial, mining, and environmental sectors.

With his thesis titled: **USING FORWARD AND INVERSE MODELLING TO INVESTIGATE THE CAPABILITY OF TWO-DIMENSIONAL ELECTRICAL RESISTIVITY TOMOGRAPHY TO DETECT WATER-BEARING ZONES IN THE SUBSURFACE,** the candidate's research makes a significant contribution to advancing two-dimensional electrical resistivity tomography (2D ERT) as a powerful tool for groundwater exploration. His study provides a rigorous evaluation of how key survey parameters—such as electrode array type, data density, and inversion settings—affect the resolution and accuracy of imaging groundwater-bearing zones in the subsurface. Through innovative forward and inverse modeling approaches, he demonstrates that 2D ERT responses are remarkably consistent across scales and resistivity contrasts, streamlining model setup. However, he critically addresses persistent challenges, including non-uniqueness, equivalence, and lateral artifacts, which can obscure thin conductive features at depth. His introduction of an adaptive bi-linear contouring method marks a breakthrough in enhancing the visual representation of conductive zones, offering a refined methodological approach for hydrogeophysical investigations. These findings provide a crucial framework for optimizing 2D ERT surveys, reinforcing its role as a vital technique in sustainable groundwater resource management.

Supervisor: Prof FD Fourie

Co-Supervisor: Dr S Esterhuyse

MAGINGI, Awodwa

Awodwa Magingi was born on 23 March 1993 in Cape Town. She grew up in Mthentu, Mthatha, Eastern Cape where she matriculated at Umtata International School in 2010. She obtained a BSc Geology Degree in 2013, Geology Honors Degree in 2014 and a Master of Geohydrology with distinction in 2019 at UFS. Her Geohydrology career started in 2015 when she was appointed as a Graduate Trainee at the Department of Water and Sanitation in Pretoria. In 2023, she was named one of the top 200 Influential Young South Africans by Mail & Guardian with outstanding impact in the 'Environment' category.

With her thesis titled: **MODELLING A CONVERSION OF A CONFINED TO AN UNCONFINED AQUIFER FLOW: A GROUNDWATER MANAGEMENT TOOL**, the candidate makes a significant contribution to the sustainable management of dual aquifer systems. She demonstrates how climate change, causing prolonged droughts or extreme short-duration rainfall with little recharge, leads to declines in surface and groundwater levels. Consequently, increased groundwater abstraction driven by population growth alters the natural state of aquifers from confined to unconfined. Using advanced differential operators, including power law processes and fractal derivatives, she develops numerical solutions that simulate groundwater behaviour based on aquifer parameters from pump tests in Langebaan. Her simulations identify the critical conversion time, marking the transition from confined to unconfined flow, which signals the need for alternative management strategies. This decision-support tool enables regulators to implement measures such as reducing water use or developing new resources, ensuring long-term groundwater sustainability and promoting community resilience.

Supervisor: Prof A Atangana

MOHAJANE, Palesa

Palesa Mohajane was born on 13 August 1991 in Sterkspruit, Eastern Cape, South Africa. She completed her secondary education in East London, matriculating from George Randell High School in 2008. She obtained a BSc in Geology in 2013, followed by a BSc Honours in Geohydrology in 2014, and an MSc in Geohydrology with distinction in 2019, all from the University of the Free State. Her professional career began in 2015 as a Graduate Trainee under Special Programs: Geohydrology at the Department of Water and Sanitation in Hartbeespoort. She has since advanced within the department and currently holds the position of Scientist Production.

With her thesis titled: **MODELLING THE EFFECT OF PANDEMIC-INDUCED BURIALS ON GROUNDWATER CONTAMINATION: A HYDROGEOLOGICAL AND EPIDEMIOLOGICAL ASSESSMENT,** the candidate significantly advances our understanding of how pandemic-driven burial surges impact groundwater quality. She demonstrates that increased burial rates during pandemics, resulting from heightened mortality, lead to the release of contaminants from decomposing remains, thereby jeopardizing groundwater resources. Integrating the SIRD model with a decay process simulation and pollutant transport equations enhanced by piecewise functions and Dirac Delta representations to account for geological heterogeneity she develops robust numerical solutions. Validated using water quality data from the Langberg Cemetery, her simulations reveal critical contamination pathways influenced by burial depth, body mass, and geological structures. This comprehensive approach provides a practical decision-support tool for sustainable groundwater management and public health protection, emphasising the urgent need for continuous monitoring and improved burial practices

Supervisor: Prof A Atangana

Co-Supervisor: Dr E Atangana

DOCTOR OF PHILOSOPHY MAJORING IN GEOLOGY

MAGSON, Justine

Justine Magson (nee Markram) was born on 1 January 1985 in Kimberley, matriculating from Northern Cape High School in 2003. She obtained a BSc-degree in Chemistry and Biology from the University of the Free State in 2006, followed by a BSc (Honours)-degree in Chemical Pathology from the University of Pretoria in 2007. A BSc, BSc (Honours) and MSc in Geology from the University of the Free State followed in 2011, 2012 and 2016, respectively. Justine joined the Department of Geology at the University of the Free State in 2013 as Junior Lecturer and is currently a Lecturer in the department.

With her thesis titled: **CONSTRAINING PARENTAL MAGMA COMPOSITIONS AND MAGMA DYNAMICS IN THE BUSHVELD COMPLEX THROUGH HIGH-RESOLUTION, MUL TI-ISOTOPE ANALYSIS ACROSS MAJOR COMPOSITIONAL AND MINERALOGICAL DISCONTINUITIES,** the candidate contributes to our understanding of the processes responsible for, and the magma dynamics across three much-studied intervals of the Earth's largest known layered intrusion. Using a combination of whole-rock Sr- and Nd-isotopic data and in-situ Sr-isotopic data on plagioclase, the candidate argues for the importance of the mixing of minerals crystallised from isotopically distinct magmas, rather than the mixing of isotopically distinct melts, across both the Pyroxenite Marker interval and the Merensky-Bastard interval. The candidate also explores the possibility of a causal relationship between plagioclase stabilisation and the observed isotopic variations across the boundary between the Lower and Upper Critical zones, which represents a departure from the more commonly held view that explains isotopic variations as having formed in response to magma addition.

Supervisor: Prof F Roelofse

Co-Supervisors: Prof G Bybee and Prof R Bolhar

DOCTOR OF PHILOSOPHY MAJORING IN MICROBIOLOGY

MC CARLIE, Samantha Jayne

Samantha started her academic career at UFS in 2018 and quickly went onto win ICA awards for the best honours and thereafter the best Master's degree in Microbiology.

To date, she has published 13 articles in high-impact peer-reviewed journals and has served as cosupervisor to 23 Masters and Honours students. She has presented her research at 8 international conferences and was the first South African invited to travel to Denmark, as part of their antimicrobial resistance program where she earned a diploma from the University of Copenhagen. Samantha is the youngest ever recipient of the SASM Bronze medal, awarded for an outstanding publication in the field of Microbiology. She is currently serving as a scientific expert and educator for both the Infection control society of South Africa and ECHO Africa.

With her thesis titled: **INSIGHTS INTO DISINFECTANT RESISTANCE OF HIGHLY RESISTANT ISOLATE *SERRATIA* SP. HRI,** Samantha's research started when she identified a new species of bacteria that is highly resistant to antimicrobials including antibiotics and disinfectants. She researched how this bacteria and other like it, become highly resistant "superbugs". She uncovered the resistance genes leading to antimicrobial resistance in this isolate and described for the first time, new mechanisms of genetic transfer between bacteria that can lead to disinfectant resistance. Her research monitored, in real time, how active or inactive resistance genes were

expressed upon exposure to different antimicrobials and created gene expression profiles for different disinfectants. Importantly, she discovered the switch that turns on resistance and activates hundreds of resistance genes when bacteria are treated with disinfectants. Her research has wide-spread applications in industries where disinfectants are used daily. This includes the medical industry for infection control, the agricultural industry for disease control, the food and beverage industry to maintain hygiene and export standards and the pharmaceutical industry.

Supervisors: Prof RR Braqq and Dr CE Boucher

DOCTOR OF PHILOSOPHY MAJORING IN PHYSICS

MAKUMBANE, Vhahangwele

Vhahangwele Makumbane was born on the 7th of April 1994 outside Thohoyandou in Tshisahulu village, Venda. She received her secondary education in Sibasa, where she matriculated at Mbilwi secondary school in 2012. She obtained her BSc Chemistry degree in 2015, BSc Honours in Physics in 2017, and MSc Nanoscience with specialization in Physics in 2020. In 2024, she completed her PhD majoring in Physics at the University of the Free State.

With her thesis titled: **DOWN AND UP CONVERSION LAYERS FOR ENHANCING THE PERFORMANCE OF c-SI SOLAR CELL EFFICIENCY,** the candidate's research aims to enhance the conversion efficiency of crystalline silicon (c-Si) solar cells through the upconversion (UC), downconversion (DC), and downshifting (DS) routes, utilizing Y_2O_3:Ho_{3+}, Yb_{3+} luminescent material. Using pulsed laser deposition and spin coating techniques, she fabricated luminescent layers that were able to emit within the spectral range of the c-Si solar cell. The obtained results suggested that the fabricated luminescent layers can be practically utilized for the improvement of c-Si solar cell performance. As a result, the candidate practically applied the luminescent layers on top of a commercial c-Si solar cell aiming to evaluate the conversion efficiency. She later introduced hollow silica nanoparticle (HSN) coatings in the luminescent layers to improve the performance of the cell, thereby reducing the reflection losses issue. The conversion efficiency results revealed an improvement of over 2% after the introduction of HSN coatings.

Supervisor: Prof HC Swart

Co-Supervisor: Prof RE Kroon and Dr MYA Yagoub

TLADI, Boitumelo Charlotte

Boitumelo Charlotte Tladi was born in Welkom on 16 October 1993. She received her secondary education in Welkom, where she matriculated at the Lephola Secondary School in 2011. She obtained her Bachelor of Science degree in 2015, her Bachelor of Science Honours in Physics degree in 2016, and her Master of Science in Nanoscience degree in 2020, all from the University of the Free State.

With her thesis titled: **CONSTRUCTION OF Co_3O_4/REDUCED GRAPHENE OXIDE HETEROSTRUCTURE-BASED SENSOR WITH NOBLE METAL LOADING FOR LPG AND PROPANE DETECTION,** the candidate makes a contribution to gas sensing materials capable of functioning at low working temperature. With this contribution, she has optimized the composition of cobalt oxide nanoparticles intercalating reduced graphene oxide sheets for

LPG detection with high sensitivity and selectivity. Lower working temperatures below 100 degrees Celsius were achieved by decorating these materials with silver or ruthenium noble metal nanoparticles, bringing these materials near the ideal of ambient temperature detectors.

Supervisor: Prof RE Kroon

Co-Supervisor: Prof DE Motaung and Dr ZP Tshabalala

DOCTOR OF PHILOSOPHY MAJORING IN STATISTICS

CHIDEME, Coster

Coster Chideme was born in Kadoma, Zimbabwe on 16 November 1976. He matriculated from Makumbe High School in 1996. Chideme obtained a BSc degree majoring in Statistics and Mathematics from the University of Zimbabwe in the year 2000, followed by a BSc Honours degree in Operations Research and Statistics and an MSc in Operations Research from the National University of Science and Technology in Zimbabwe in 2010 and 2013 respectively. He started his career as a high school teacher in Zimbabwe in 2001, and in 2010 became a research officer at a parastatal. Currently, he works as a statistician for the Zimbabwe Revenue Authority.

With his thesis titled: **STOCHASTIC MODELLING AND FORECASTING OF BLOOD DONATIONS AT A BLOOD BANK IN ZIMBABWE**, the candidate contributes to scholarship on forecasting blood supply by focusing on the use of stochastic models in determining future blood-donation patterns in Zimbabwe. The study's central argument is that time series and Markov chain models are more instructive for understanding and explaining the stochastic and uncertainty dynamics associated with blood donations. The findings of the study indicate that blood donation in Zimbabwe is seasonal. Young donors below the age of 30 years contribute at least 70% of blood collections. The results further show that blood-donor demographic factors have a significant impact on blood donation and should be incorporated in decision-making such as targeted blood-donor recruitment. Blood donors tend to lapse in donations over time, thus depleting the blood-donor pool; this requires intensive blood-donor education and donor engagement.

Supervisor: Prof D Chikobvu

JAKATA, Owen

Owen Jakata was born in Mutare, Zimbabwe on 8 December 1969. After completing his advanced level at Hamilton High School in 1989, he obtained a BSc degree in Mathematics and Chemistry at the University of Zimbabwe in 1995. This was followed by a BSc (Honours) degree in Operations Research and Statistics in 2012 and an MSc in Operations Research and Statistics at the National University of Science and Technology in 2014. He began his teaching career at Hamilton High School in 1996. In 2004, he became a lecturer at Bulawayo Polytechnic; in 2015, he was appointed as lecturer at Bindura University of Science Education.

With his thesis titled: **STATISTICAL MODELLING OF FINANCIAL RISK IN THE SOUTH AFRICAN INDUSTRIAL AND FINANCIAL MARKETS,** the candidate contributes to scholarship on risk estimation and analysis, focusing on the use of non-Normal distribution-based risk models. The study presents the argument that extreme value distributions, such as the GEVD, GPD, and Archimedean Gumbel Copula models, are more appropriate non-Normal distribution-based risk models for estimating extreme risk. Extreme value distributions are preferable for

modelling the tails of financial data distributions. The findings of the study indicate that the South African Financial Index is riskier than the South African Industrial Index. In this bivariate case, the more robust Archimedean Gumbel copula with Log-Normal distributed marginal provides improved estimates of portfolio risk for the dependent assets. The results further show a minimal decrease in portfolio risk when compared to the total sum of the risk of the two single risky assets.

Supervisor: Prof D Chikobvu

DEAN'S MEDAL

AWARDED TO A STUDENT WHO ACHIEVED THE BEST RESULTS IN RESPECT OF A THREE-YEAR BACHELOR'S DEGREE IN THE FACULTY OF NATURAL AND AGRICULTURE SCIENCES

ROSSOUW, Christine

BACHELOR OF SCIENCE WITH SPECIALISATION IN CHEMISTRY AND PHYSICS

CONGRADULATIONS,

Class of 2024, on your graduation! You are now officially alumni of the University of the Free State (UFS) and part of an ever-growing community of excellence. We are proud of your achievements and excited to see what your future holds and to connect with you in the bright future ahead of you.

KEEPING YOU INFORMED AND CONNECTED

We strive to keep you informed of the latest news, campaigns, events, reunions, and projects emerging from the UFS. But to stay connected with us, you must update your contact details regularly. Stay in touch with us by visiting our website, Facebook, and LinkedIn pages, and keep an eye out for emails from us. Let us keep you connected with your alma mater and other UFS alumni locally and globally. Not only do we want to keep you connected, but we want to continue celebrating you as you achieve excellence in the future.

Stay connected by ensuring that you update your details every year in one of the following ways:

- Online at www.ufs.ac.za/alumni
- Email us at alumni@ufs.ac.za
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