



# Graduation Programme

The Future. Reimagined.





## Dear UJ Graduate

At the University of Johannesburg (UJ), graduation not only signifies an academic milestone but also represents the emergence of a new cohort of leaders. Our objective has been to empower you as leaders who are primed to face the challenges of an ever-changing world defined by a plethora of challenges and opportunities. As you navigate these great societal shifts, we hope that your time at UJ will serve as a constant source of reference and inspiration. As we have sought to demonstrate, the Fourth Industrial Revolution (4IR) presents the opportunity for the exploration of new and exciting spheres, and you are uniquely poised to navigate this terrain. Our focus at UJ has been to create graduates who are agile, curious, and able to be active participants against this backdrop.

Your graduation today serves as a celebration of this momentous achievement! I want to take this opportunity to remind you that you now represent the privileged few in our country. You are uniquely poised to address some of the serious challenges we face and a qualification from UJ will stand you in good stead!

At UJ, you have encountered the finest academic minds from diverse backgrounds, spanning across the world as well as innovative technology-rich approaches to teaching and learning. As a result, UJ's global stature and academic robustness are recognised by the most prestigious global higher education ranking systems in the world. UJ has become a competitive player, not only in South Africa but also on the continent. You are an important part of this story.

We welcome you as a new member of our esteemed alumni community, which is making a lasting impact on society. We encourage you to join the UJ Alumni Network and become an active member of the University Convocation, which affords you an opportunity to make a significant contribution to our academic projects and beyond. Our promise in return to you is that we will continue to build UJ as an international university of choice, anchored in Africa, dynamically shaping the future.

Congratulations on this significant achievement. We look forward to witnessing you reimagine the future!

**Prof Letlhokwa Mpedi**  
*Vice-Chancellor and Principal*  
*University of Johannesburg*

**Welcome to the  
Graduation Ceremony of the  
University of Johannesburg  
11 May 2023 at 16:30**

**Welkom by die  
Gradeplegtigheid van die  
Universiteit van Johannesburg  
11 Mei 2023 om 16:30**

**Le a Amogelwa  
Moletlong wa Dikapešo wa  
Yunibesithi ya Johannesburg  
11 Mopitlo 2023 ka 16:30**

**Niyamukelwa  
eMcimbini wokweThweswa kweZiqu  
weNyuvesi yaseJohannesburg  
11 kuNhlaba 2023 ngele-16:30**

# **UNIVERSITY OF JOHANNESBURG**

## **CHANCELLOR**

Dr P Mlambo-Ngcuka

BA Ed (Lesotho), MPhil (UCT), DTech Ed (Warwick, England)

## **MEMBERS OF THE MANAGEMENT EXECUTIVE COMMITTEE**

### **VICE-CHANCELLOR AND PRINCIPAL**

Prof LG Mpedi

B Juris, LLB (Vista), LLM (RAU), LLD (UJ)

### **DEPUTY VICE-CHANCELLOR: ACADEMIC**

Prof S Khan

BSc, BSc Hons, MSc, PhD (UWC)

### **DEPUTY VICE-CHANCELLOR: RESEARCH AND INTERNATIONALISATION**

Prof S Sinha

BEng, MEng, PhD (UP)

## **REGISTRAR**

Prof B van Vuuren  
BSc, BSc Hons, MSc, PhD (UP)

## **CHIEF FINANCIAL OFFICER**

Ms N Mamorare  
BCom (Rhodes), BCom Hons (UKZN), CA (SA)

## **CHIEF OPERATING OFFICER**

Dr M Ralephata  
BSc Eng (Wits), MBA (UOVS), MSc, DBA (Heriot-Watt, UK)

## **SENIOR EXECUTIVE DIRECTOR**

Dr N Vukuza  
BA (Fort Hare), BA Hons (Rhodes), DTE (UNISA), MA (Wits),  
PhD (SUN)

## **GENERAL COUNSEL**

Mr D Pretorius  
BCom, LLB, LLM (NWU)

# **EXECUTIVE DEANS**

## **COLLEGE OF BUSINESS AND ECONOMICS**

Prof L Ntsalaze

BCom, BCom Hons (NMMU), MPhil (UCT), PhD (SUN)

## **FACULTY OF ART, DESIGN AND ARCHITECTURE**

Prof D Smal (Acting)

NDip, NHDip Clothing (TP), MTech Fashion (TUT),  
DTech Design (CPUT)

## **FACULTY OF EDUCATION**

Prof N Petersen

BA Ed (UNISA), BEd Hons, MEd (RAU), DEd (UJ)

## **FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT**

Prof DJ Mashao

BSc Eng, MSc Eng (UCT), MSc AM, PhD (Brown, USA)

## **FACULTY OF HEALTH SCIENCES**

Prof A Temane (Acting)

BNSc (UNW), MCur (RAU), PhD (UJ)

## **FACULTY OF HUMANITIES**

Prof K Naidoo

BA, BA Hons, MA (UDW), DTE (Unisa), PhD (Manchester, UK)

## **FACULTY OF LAW**

Prof W Domingo

B SoSc (UCT), LLB (UWC), LLM (Columbia, USA),  
SJD (Wisconsin-Madison, USA)

## **FACULTY OF SCIENCE**

Prof R Meijboom (Acting)

M (Groningen, Netherlands), PhD (UCT)

## **DEAN**

### **JOHANNESBURG BUSINESS SCHOOL**

Dr R Carolissen

BSc, BSc Hons, MSc (UWC), BBA Hons,  
MBA (SUN), MCom (NWU), PhD (UWC)

# **MEMBERS OF COUNCIL**

## **CHAIRPERSON**

Ms X Kakana

## **DEPUTY CHAIRPERSON**

Dr Y Ndema

## **MEMBERS**

Prof H Abrahamse

Mr FM Baleni

Ms K Gugushe

Prof D Hildebrandt

Prof S Khan

Ms K Khumalo

Ms B Madikizela

Mr M Mahlasela

Mr M Manana

Ms L Mateza

Dr A Mokoena

Ms N Molope

Prof LG Mpedi

Mr LM Mpunzi

Ms NP Mvubu

Dr WP Rowland

Ms JA Schreiner

Prof A Strydom

Mr T Thobejane

## **PRESIDENT OF CONVOCATION**

Mr LM Mpunzi



# GAUDEAMUS IGITUR

Gaudeamus igitur,  
Juvenes dum sumus;  
Post iucundum iuventutem,  
Post molestam senectutem  
Nos habebit humus.  
Vivat academia,  
Vivant professores,  
Vivat membrum quodlibet,  
Vivat membra quaelibet;  
Semper sint in flore!

## English

Let us rejoice, therefore,  
While we are young.  
After a pleasant youth  
After a troubling old age  
The earth will have us.  
Long live the academy!  
Long live the professors!  
Long live each student;  
Long live the whole fraternity;  
For ever may they flourish!

## Sesotho sa Leboa

Ka gona, a re thabeng,  
Re sa le ba bafsa.  
Ka morago ga bofsa bjo bo bose  
Ka morago ga go tšofala mo go nago  
le mathata  
Lefase le tla ba le rena.  
Phela thuto phela!  
Phelang diprofesa phelang!  
Phelang baithuti phelang;  
Phela kagišano ka botlalo phela;  
O ka re ba ka phela gabotse  
goyagoile!

## Afrikaans

Laat ons dan vrolik wees,  
Terwyl ons jonk is;  
Na 'n aangename jeug.  
Na 'n onaangename oudag,  
Sal die aarde ons hou.  
Lank lewe die universiteit,  
Lank lewe die professore,  
Lank lewe elke student,  
Lank lewe al die studente,  
Mag hulle vir ewig hul jeug behou!

## Zulu

Ngakho, masithokoze  
Sisebasha nje.  
Emva kobumnandi bobusha  
Emva kwezinkinga zobudala  
Umhlaba uzosithatha.  
Phambili ngemfundo!  
Phambili boSolwazi!  
Phambili nakuwe mfundi;  
Phambili ngenhlangano yonke;  
Maziqhubeke ngonaphakade!

# FACULTY OF EDUCATION

## QUALIFICATIONS

### 1. Master of Education

**Benadie**, Dean (Educational Management)

**Minor Dissertation:** A self-evaluation of my own mathematics practice and leadership position: Investigating leadership style in relation to learner performance

**Supervisor:** Dr MR Pather

**Broadhurst**, Jodi Leigh (Education)

**Dissertation:** The Classroom teaching practices of Life Sciences teachers in Gauteng

**Supervisor:** Dr T Dhurumraj

**Bunt**, Robyn Lee (Information and Communication Technology in Education) (**with distinction**)

**Minor Dissertation:** Lecturers' perceptions of communities of practice to promote ICT adoption at an HEI

**Supervisor:** Prof GV Lautenbach

**Finn, Stephanie Claire** (Information and Communication Technology in Education)

**Minor Dissertation:** Dimensions of student engagement in a blended learning environment at a private HEI

**Supervisor:** Prof GV Lautenbach

**Co-supervisor:** Dr J Goto

**Fukweni, Mawaka Aubrey** (Educational Management)

**Minor Dissertation:** Inclusive teacher leadership development for an improved workforce in schools

**Supervisor:** Dr ED De Klerk

**Govender, Merusha** (Information and Communication Technology in Education) **(with distinction)**

**Minor Dissertation:** Experience of LMS adoption under COVID-19 by a software company's client training and support staff

**Supervisor:** Prof S Isaacs

**Govender, Nicolan Stefaan** (Educational Management) **(with distinction)**

**Minor Dissertation:** The influence of authoritarian school leadership's masculinist power on educators' performance: Implications for critical leadership

**Supervisor:** Dr SE Seyama

**Govender, Sivakumarie** (Information and Communication Technology in Education)

**Minor Dissertation:** ICT coordinators` role in supporting delivery of the trimmed CAPS curriculum in Gauteng Secondary schools

**Supervisor:** Prof GV Lautenbach

**Hlungwani, Nyiko Rodgers** (Information and Communication Technology in Education)

**Minor Dissertation:** The integration of ICTs in the teaching of mathematics at selected rural primary schools in KwaZulu-Natal

**Supervisor:** Prof GV Lautenbach

**Kandiero, George Humphrey** (Information and Communication Technology in Education)

**Minor Dissertation:** English second additional language FET phase learners` experiences using an online digital paraphrasing tool to improve their writing

**Supervisor:** Dr M Moodley

**Khan, Neelofar** (Education)

**Dissertation:** Exploring learner agency through critical literacy in a grade 10 classroom

**Supervisor:** Prof L Kajee

**Khumalo, Calsile Patricia** (Information and Communication Technology in Education)

**Minor Dissertation:** High school teachers' perceptions of the inclusion of African languages on digital learning platforms

**Supervisor:** Dr M Moodley

**Kubheka, Patience Nelisiwe** (Education)

**Dissertation:** The instructional leadership roles and responsibilities of middle managers in five public primary schools in the Gauteng Province

**Supervisor:** Dr P Naidoo

**Kwayi, Annah Maki** (Education)

**Dissertation:** Challenges experienced by grade 6 Social Sciences teachers when teaching map skills

**Supervisor:** Prof S Ramsaroop

**Co-supervisor:** Prof ASF Carolin

**Labuschagne, Celeste** (Information and Communication Technology in Education)

**Minor Dissertation:** Online formative assessment challenges experienced by grade 10 Physical Sciences teachers

**Supervisor:** Dr T Dhurumraj

**Le Cornu, Bianca Carol** (Information and Communication Technology in Education) **(with distinction)**

**Minor Dissertation:** Student's perceptions of the use of online tools for feedback, collaboration and participation in a higher education graphic design course during a global pandemic

**Supervisor:** Prof GV Lautenbach

**Levinge Lang, Rene Antoinette** (Education) **(with distinction)**

**Dissertation:** The learning experiences of final year initial teacher education student teachers using a new lesson design approach

**Supervisor:** Prof SJ Gravett

**Co-supervisor:** Prof NF Petersen

**Luthuli, Nombuso Progress** (Educational Management) **(with distinction)**

**Minor Dissertation:** Inclusive teacher leadership development for an improved workforce in schools

**Supervisor:** Dr ED De Klerk

**Macfarlane, Michael James** (Educational Management)

**Minor Dissertation:** Exploring the influence of school leadership on inclusive education in South African independent schools

**Supervisor:** Dr DPS Andrews

**Mahlangu, Lindokuhle Roda** (Educational Management)  
**Minor Dissertation:** The School Governing Body's role in confronting violence in rural primary schools  
**Supervisor:** Prof PJ du Plessis

**Mahomed, Aboo Baker** (Information and Communication Technology in Education)  
**Minor Dissertation:** Experiences of secondary school teachers who claim to have been successful with online teaching  
**Supervisor:** Prof GV Lautenbach

**Makhamba, Thandeka** (Educational Management)  
**Minor Dissertation:** School management team members' influence on teacher leadership development in public primary schools  
**Supervisor:** Dr ED De Klerk

**Makuhani, Buwa Thomas** (Educational Management)  
**Minor Dissertation:** Lecturers' experiences of change management processes during the COVID-19 crisis at a community education institution  
**Supervisor:** Dr M Rajbhandari

**Malatji, Portia** (Educational Management)  
**Minor Dissertation:** Emerging leadership practices during the COVID-19 pandemic in a public South African school  
**Supervisor:** Dr CKO Smith

**Malinga, Fikile Ella** (Educational Management)

**Minor Dissertation:** Principals' capabilities in fostering collaborative cultures in advancing teacher leadership in urban schools

**Supervisor:** Dr ED De Klerk

**Manaka, Thapelo Mary** (Education)

**Dissertation:** Teachers' and learners' perceptions about constructivist learning environments in their Life Sciences classrooms

**Supervisor:** Dr L Mavuru

**Co-supervisor:** Mrs M Penn

**Mapumulo, Nonhlanhla** (Education)

**Dissertation:** Teachers' understanding and experiences of the integration of Information and Communication Technologies (ICT) in teaching and learning in Natural Science and Technology

**Supervisor:** Prof SM Motala

**Co-supervisor:** Dr Z McDonald

**Mathonsi, Doctor** (Information and Communication Technology in Education)

**Minor Dissertation:** Intermediate phase mathematics teachers' challenges of using Information Communication and Technology (ICT) in rural schools

**Supervisor:** Dr V Ramdhany

**Co-supervisor:** Prof GV Lautenbach



**Matsetela, Mmasa Stephina** (Educational Management)

**Minor Dissertation:** Transformative school leader's use of power bases during the COVID-19 pandemic: Implications for future fit leadership

**Supervisor:** Dr Seyama

**Mbiro, Sharon Ratidzo** (Educational Management)

**Minor Dissertation:** School leaders' power bases and tactics during the COVID-19 crisis: A critical leadership perspective

**Supervisor:** Dr Seyama

**Mdlalose, Zinhle Dorcas** (Educational Management)

**Minor Dissertation:** Women leaders' barriers to effective management in North - West secondary schools

**Supervisor:** Dr RL Moloele

**Mhlongo, Nobuhle** (Educational Psychology)

**Minor Dissertation:** The transition of learners with learning disabilities from high school into tertiary education

**Supervisor:** Prof MM Sefotho

**Mokate, Princess Mampho** (Educational Management)

**Minor Dissertation:** Gauteng public school's readiness to meet the demands of the Fourth Industrial revolution

**Supervisor:** Prof RA Sonn

**Molubi, Tuelo** (Information and Communication Technology in Education)

**Minor Dissertation:** Teachers' experiences in the use of ICT for teaching in selected public junior secondary schools in Gaborone

**Supervisor:** Prof GV Lautenbach

**Morweng, Thato** (Education)

**Dissertation:** The hidden curriculum of gender in contemporary picturebooks: The case of Book Dash

**Supervisor:** Prof ASF Carolin

Co-supervisors: Dr KA McCarthy and Prof A Brown

**Motani, Yasmin** (Information and Communication Technology in Education)

**Minor Dissertation:** The use of educational technologies in well-resourced independent school STEM classrooms in post-pandemic South Africa

**Supervisor:** Prof GV Lautenbach

**Motaung, Temiki Jacob** (Educational Management)

**Minor Dissertation:** Effective school management by School Management Teams during the COVID-19 pandemic era

**Supervisor:** Dr RL Moloele

**Naidoo, Thavamoni** (Educational Management)

**Minor Dissertation:** Women leading quintile 2 ranking schools during the COVID-19 pandemic

**Supervisor:** Dr Z Moyo

**Ndlovu, Proper** (Education)

**Dissertation:** Strategies for leading and managing adolescent girls HIV/AIDS prevention programs in selected South African high schools

**Supervisor:** Dr OC Potokri

**Ngubane, Siphesihle Pearl** (Education)

**Dissertation:** Trainers and Training of Educators for the implementation of the CAPS in primary school

**Supervisor:** Prof D Naidoo

**Njokwe, Latoya** Satisfaction (Education)

**Dissertation:** Learning to learn, relearn and unlearn: Exploring innovative teacher narratives for leading learning in the fourth industrial revolution

**Supervisor:** Prof K Yassim

**Nkosi, Nobekwa Hope** (Educational Psychology)

**Minor Dissertation:** Communication experiences in learning environments of learners with hearing impairments

**Supervisor:** Prof MM Sefotho

**Co-supervisor:** Dr VM Dwarika

**Nsibande, Gciniwe Nozizwe** (Information and Communication Technology in Education)

**Minor Dissertation:** Lecturer self-perceptions of competence in teaching with technology in blended programmes at a university in Eswatini

**Supervisor:** Prof D Govender

**Phakula, Nkateko Success** (Educational Management)

**Minor Dissertation:** The role of school principals in promoting equity in rural secondary schools

**Supervisor:** Dr PK Triegaardt

**Raban, Ferhana** (Education)

**Dissertation:** The influence of school culture on mathematics and science continuing teacher professional development of mathematics and science teachers during the COVID-19 pandemic

**Supervisor:** Dr T Dhurumraj

**Rampersadh, Devashka Baijnath** (Educational Management)

**Minor Dissertation:** The challenges of female primary school principals in their leadership roles in Johannesburg, Gauteng

**Supervisor:** Dr E Groenwald

**Roets, Leon** (Educational Management) **(with distinction)**

**Minor Dissertation:** A self-study of leading teachers to prepare learners for a 4IR world

**Supervisor:** Prof K Yassim

**Schaal, Candice** (Educational Management)

**Minor Dissertation:** Leading teacher emotional well-being at low quintile primary schools

**Supervisor:** Dr C Uleanya

**Singh, Rowena Chandani** (Information and Communication Technology in Education)

**Minor Dissertation:** Final year BEd students' perceptions of their ICT readiness to teach in the 21st century

**Supervisor:** Prof GV Lautenbach

**Smit, Samantha** (Educational Management)

**Minor Dissertation:** Enabling school leadership towards managing changes during the COVID-19 pandemic: Case studies of primary schools in UAE

**Supervisor:** Dr M Rajbhandari

**Van Heerden, Clinton** (Information and Communication Technology in Education)

**Minor Dissertation:** A framework for effective online corporate training based on Adult Learning Theories

**Supervisor:** Prof F Schutte

**Zisongo, Thasanqa** (Educational Management)

**Minor Dissertation:** Teacher trade unions' role in constructing school principals' professional identity

**Supervisor:** Dr E Groenewald

**Zwezwe, Lucky** (Information and Communication Technology in Education)

**Minor Dissertation:** Lecturers' implementation of blended learning strategies at a TVET College

**Supervisor:** Prof GV Lautenbach

# **Special Award**

**Faculty of Education:**

**Chancellors' Medal for the Most Meritorious  
Master's Study for 2022**

**Levinge Lang, Rene Antoinette**  
Masters in Education (**with distinction**)

## 2. Doctor of Philosophy in Education

**Ahmed, Nadeem**

**Thesis:** The influence of classroom management and learners' academic performance and skills development at secondary schools in Johannesburg

**Supervisor:** Prof PJ du Plessis

**Dhanpat, Kamlawathee**

**Thesis:** The education district's role in developing principals' instructional leadership in schools

**Supervisor:** Dr SR Naicker

**Maseko, Vusi Joseph Collen Kasonde**

**Thesis:** Perceptions of lecturers on the relationship between professional collaboration and professional learning communities in Gauteng TVET college campuses

**Supervisor:** Prof BR Grobler

**Co-supervisor:** Dr SR Naicker

**Michaels, Leone Chris-Zelda**

**Thesis:** Postgraduate student support and academic success in the rapid transition to online teaching and learning during a Pandemic

**Supervisor:** Prof SM Motala

**Co-supervisor:** Prof GV Lautenbach

**Msimanga, Khehla Isaac**

**Thesis:** Managing access control as means of ensuring safety in Sedibeng West Schools

**Supervisor:** Prof PJ du Plessis

**Penn, Mafor**

**Thesis:** Pre-service Natural Sciences teachers' experience of virtual and augmented reality-enhanced inquiry learning

**Supervisor:** Prof UD Ramnarain

**Rasool, Kharoon Nisha**

**Thesis:** The instructional leadership role of the School Management Team in developing teachers on the use of ICT to enhance classroom learning

**Supervisor:** Dr P Naidoo



# FACULTY OF SCIENCE

## QUALIFICATIONS

### 3. Diploma (Dip)

**Bambo**, Phishego Ashleigh (Biotechnology) **(with distinction)**

**Betana**, Sesona Zimi (Analytical Chemistry)

**Bopape**, Makopa Magdeline (Biotechnology)

**Buthelezi**, Sibulelo Hloniphile Cleopatria (Analytical Chemistry)

**Dladla**, Nonkululeko Phumelele (Analytical Chemistry)

**Harris**, Michka Tristen (Biotechnology)

**Kganyago**, Pontsho Edger (Analytical Chemistry)

**Khoza**, Busi (Food Technology)

**Khoza**, Portia Wandile (Biotechnology)

**Lesenyeho**, Maria Karabo (Analytical Chemistry)

**Mahlangu**, Highness Nomhlehabo (Biotechnology)

**Mahlangu**, Siphilwe Philangezwi (Biotechnology)

**Mahlombe**, Isiphile (Analytical Chemistry)

**Maila**, Maponye Naledi (Biotechnology)

**Makhuvele**, Bridget (Analytical Chemistry)

**Malleka**, Douglas (Biotechnology)

**Mashiane**, Nhlakanipho Queen (Analytical Chemistry)

**Mashimbye**, Carol Kwetsimani (Analytical Chemistry)

**Masiu**, Lemohang (Analytical Chemistry)

**Mnyute**, Asanda (Biotechnology)

**Mochekegekge**, Trinity Kelebogile (Analytical Chemistry)

**Mohlala**, Tshepang (Analytical Chemistry)  
**Mosoathupa**, Lesego (Analytical Chemistry)  
**Musingarimi**, Simbarashe (Biotechnology)  
**Mutena**, Lucia Ndazoremhe (Biotechnology)  
**Muthaphuli**, Muimeleli Luther (Biotechnology)  
**Ndzimandze**, Ncedo Mncedisi (Biotechnology)  
**Nkadimeng**, Hellen (Analytical Chemistry)  
**Nkalanga**, Enock Cyprian (Analytical Chemistry)  
**Ramokgata**, Tshepiso (Biotechnology)  
**September**, Sisa (Analytical Chemistry)  
**Shongwe**, Sesi (Biotechnology)  
**Sibiya**, Xolani Innocent (Analytical Chemistry)  
**Twala**, Tracey Zodwa (Analytical Chemistry)  
**Yambani**, Towanda (Analytical Chemistry)

#### **4. Bachelor of Science (BSc)**

**Maganedisa**, Pontsho Clearance (Chemistry and Mathematics)  
**Mangindana**, Ongezwa (Botany and Chemistry)  
**Mathebula**, Moses Bhekithemba (Physiology and Biochemistry)  
**Mokoena**, Masehapi Astrecia (Biochemistry and Chemistry)  
**Nkosi**, Ntokozo Meshack (Chemistry and Mathematics)  
**Seletswane**, Oarabile (Biochemistry and Botany)  
**Temana**, Boitumelo (Chemistry and Mathematics)

## 5. Bachelor of Science Hons (BSc Hons)

**Hammon**, Keenan James (Applied Mathematics)

**Luvhani**, Rinae Queen (Applied Mathematics)

**Matomela**, Jabulani (Computer Science with Cyber Security)

**Sithole**, Thato (Computer Science)

# Special Award

**Faculty of Science: Faculty Prize for the Most  
Prestigious Honours graduate for 2022**

**Maartens, Alexander**

**Bachelor of Science Honours (BSc Hons): Mathematics (with  
distinction)**

## 6. Master of Commerce (MCom)

**Zwarts**, Hendrik Rynhard (Informatics)

**Dissertation:** A cyber-diplomacy and awareness framework (CDAF) for diplomats in developing countries

**Supervisor:** Dr J du Toit

**Co-supervisor:** Prof SH von Solms

## 7. Master of Science (MSc)

**Adair**, Matthew Grant (Zoology) (**with distinction**)

**Dissertation:** The Hitchhiker's Guide to dwarf chameleons (Bradypodion): The composition and function of the microbiome

**Supervisor:** Prof B Jansen van Vuuren

**Co-supervisor:** Prof K Tolley (South African National Biodiversity Institute)

**Co-supervisor:** Dr J da Silva (South African National Biodiversity Institute)

**Dumakude**, Thabo Patrick (Biochemistry)

**Dissertation:** Prophylactic HPV vaccine effects in preventing cervical cancer

**Supervisor:** Prof LR Motadi

**Jantjies, Zodwa Edith (Biochemistry)**

**Dissertation:** Investigating the effect of cannabis sativa and its metabolic compounds in prostate

**Supervisor:** Prof LR Motadi

**Kolenic, Anthony Benjamin (Information Technology)**

**Dissertation:** Slime mold inspired neuroevolution

**Supervisor:** Prof DA Coulter

**Latief, Lutfiyya (Zoology)**

**Dissertation:** Aspects of water quality monitoring utilising the sharptooth catfish (*Clarias gariepinus*), parasite infection statistics and trace element sequestration in the copepod, *Lamproglena clariae*

**Supervisor:** Prof A Oldewage

**Co-supervisor:** Dr B Gilbert

**Marengwa, Duduzile Thabitha (Botany)**

**Dissertation:** The medicinal value of the Asteraceae family in the treatment of respiratory tract infections (RTIs) in southern Africa

**Supervisor:** Prof A Moteetee

**Co-supervisor:** Prof H Serepa-Dlamini

**Co-supervisor:** Prof OA Fawole

**Masilela, Thokozani Selby (Aquatic Health)**

**Minor Dissertation:** Evaluating the impacts of final effluent discharged from Waste Water Treatment Works on the ecological integrity of the Rietspruit River located within Emfuleni Municipality, South Africa

**Supervisor:** Dr GP Twedde

**Munisi, Tshegofatso (Zoology)**

**Dissertation:** DNA barcoding of estuarine macrobenthos in the Eastern Cape using traditional sequencing and 4IR metabarcoding

**Supervisor:** Prof PR Teske

**Co-supervisor:** Prof B Jansen van Vuuren

**Co-supervisor:** Dr A Emami-Khoyi

**Myoli, Akhona (Biochemistry) (with distinction)**

**Dissertation:** Metabolomics studies, involving computational methods, to investigate the chemical space and biochemistry of different cultivars of home grown cannabis

**Supervisor:** Dr F Tugizimana

**Co-supervisor:** Prof EN Madala (University of Venda)

**Co-supervisor:** Prof JJJ van der Hooft (Wageningen University & Research, Netherlands)

**Nabi, Mohammed Waseem (Informatics)**

**Dissertation:** Working with Fragile delivery methodologies in software development workspaces

**Supervisor:** Prof WS Leung

**Ndamse, Cuma Cumisa (Biochemistry)**

**Dissertation:** Biophysical and in silico investigation of interaction between *S. mansoni* Hsp60 protein and novel epolactaene-based inhibitors

**Supervisor:** Prof AP Kappo

**Co-supervisor:** Dr P Masamba

**Orfao, Jarred (Information Technology) (with distinction)**

**Dissertation:** Improving face presentation attack detection using deep learning and generative data augmentation

**Supervisor:** Prof D van der Haar

**Othibeng, Kgalaletso (Biochemistry) (with distinction)**

**Dissertation:** Metabolomics studies, exploring and applying e-infrastructures, to unravel biochemical events defining the effects of biostimulants on crop plants

**Supervisor:** Dr F Tugizimana

**Co-supervisor:** Dr D Petras (University of Tübingen, Germany)

**Co-supervisor:** Prof KB Kang (Sookmyung Women's University, Korea)

**Pillay, Deshan (Biochemistry)**

**Dissertation:** Structural and biophysical characterization of the interaction between *Schistosoma mansoni* Axonemal Dynein Intermediate chain protein and Dynarrestin

**Supervisor:** Dr P Masamba

**Co-supervisor:** Prof AP Kappo



**Rielly, Alisha** (Aquatic Health)

**Dissertation:** Biomarker responses in *Danio rerio* following an acute exposure (96-hr) to e-waste

**Supervisor:** Prof R Greenfield

**Co-supervisor:** Dr S Dahms-Verster

**Serite , Conny Prudence** (Zoology)

**Dissertation:** Comparing the effectiveness of metabarcoding and metagenomics in the dietary analysis of the South African pipefishes (*Syngnathus spp.*) from fecal eDNA

**Supervisor:** Prof PR Teske

**Co-supervisor:** Dr A Emami-Khoyi

**Teffo, Thabitha Matjatji** (Biotechnology)

**Dissertation:** Comparative functional metagenome analysis of the Jukskei river system impacted by the urbanization phenomenon

**Supervisor:** Dr A Abrahams

**Tshiruruvhela, Takalani** (Aquatic Health)

**Minor Dissertation:** An assessment of the aquatic health of river systems that drain into Nandoni Dam in the Luvuvhu River catchment, Vhembe District Municipality, Limpopo Province, South Africa

**Supervisor:** Prof R Greenfield

**Tsikwa, Michele Rumbidzai (Aquatic Health)**

**Dissertation:** Toxic effects of increasing concentrations of the antiretroviral drug efavirenz on *Oreochromis mossambicus* early life stages after acute exposure

**Supervisor:** Prof JC van Dyk

**Co-supervisor:** Dr C Nibamureke

**Weiss, Sven Erick (Zoology) (with distinction)**

**Dissertation:** Development of a conservation strategy for a critically endangered pipefish using population genomics

**Supervisor:** Prof P Teske

**Co-supervisor:** Prof H Kaiser (Rhodes University)

**Co-supervisor:** Prof B Jansen van Vuuren

# **Special Award**

**Faculty of Science:**

**Chancellors' Medal for the Most Meritorious  
Master's Study for 2022**

**Nofal, Ashlee Paige**

**Master of Science (MSc): Zoology (with distinction)**

## 8. Doctor of Technology (D Tech)

**Daji, Grace Abosede** (Food Technology)

**Thesis:** Optimization of mahewu processing and investigation of its bacterial microbiota and metabolite profile

**Supervisor:** Prof OA Adebo

**Co-supervisor:** Prof E Green

## 9. Philosophiae Doctor (PhD)

**Askes, Miles** (Mathematics)

**Thesis:** The Spectral Rank in Rings

**Supervisor:** Dr FP Schulz

**Co-supervisor:** Prof RM Brits

**Brendler, Thomas** (Botany)

**Thesis:** Historical and scientific perspectives on the commercialization of southern African medicinal plants in Europe

**Supervisor:** Prof B-E van Wyk

**Cilliers, Michael** (Computer Science)

**Thesis:** Maintaining population diversity in evolutionary algorithms via epigenetics and speciation

**Supervisor:** Prof DA Coulter

**Gatyeni, Siphokazi Princess** (Applied Mathematics)

**Thesis:** On the long-term dynamics of COVID-19 in South Africa: Insights

from mathematical models

**Supervisor:** Prof F Nyabadza

**Co-supervisor:** Dr F Chirove

**Hamany Djande, Claude Yasmine** (Biochemistry)

**Thesis:** Metabolomic profiling of secondary metabolites of barley (*Hordeum vulgare*) cultivars with the focus on plant-protective phenolics and defence-related metabolites.

**Supervisor:** Prof IA Dubery

**Co-supervisor:** Prof LA Piater

**Co-supervisor:** Dr F Tugizimana

**Lombard, Natasha** (Botany)

**Thesis:** A systematic study of the genus *Thesium* L. (Santalaceae)

**Supervisor:** Prof B-E Van Wyk

**Co-supervisor:** Dr MM Le Roux (South African National Biodiversity Institute)

**Co-supervisor:** Dr F Forest (Royal Botanic Gardens, United Kingdom)

**Pretorius, Maria Moller** (Zoology)

**Thesis:** The effects of environmental degradation due to metal pollution on the African sharptooth catfish (*Clarias gariepinus*) and an associated parasite species (*Lamproglena clariae*) from the Vaal River, South Africa.

**Supervisor:** Prof A Oldewage

# FACULTY OF EDUCATION

## DOCTORAL LAUDATIONS

**Ahmed, Nadeem (PhD)**

Nadeem Ahmed matriculated and graduated in Pakistan. He did his Master's degree in Educational Planning and Management at the National University of Modern Languages in Islamabad, Pakistan. He then moved to South Africa in 2012 and was admitted to the University of Johannesburg (UJ) in 2017, where he completed his Master's in Educational Leadership and Management in 2019. Currently he is serving as President of the Islamic Circle of Southern Africa (a non-profit organisation).

In this study, a qualitative research approach was used to discover, obtain, and provide a realistic picture of selected classrooms in Johannesburg schools. Purposive sampling was used and face-to-face semi-structured interviews were conducted with teachers in these schools. The findings of the study indicated that classroom management has a strong influence on learners' academic performance and social skills development, but the fact that other factors influence learners' performance cannot be ignored. Socio-economic background, unemployment, poverty, broken family systems, divorce, drug abuse, crime, teenage pregnancies, the availability of physical resources in classrooms, and teacher efficacy are among the major factors that influence learners' performance.

The study is significant because it helps teachers and administrators identify classroom management as an

indispensable behaviour and function for teachers in secondary schools. It also confirms the importance of using the variables identified in the study, namely discipline, motivation, use of appropriate teaching methods, and communication to induce behaviour change in learners.

**Supervisor:** Prof PJ du Plessis

## **Dhanpat, Kamlawathee (PhD)**

Kamlawathee Dhanpat matriculated from the Stanger Secondary School in KwaZulu-Natal in 1981. She obtained a Foundation Phase Education Diploma in 1984 and completed the Higher Education Diploma for pre-primary specialisation in 1993 from UNISA. She taught at several primary schools in KwaZulu-Natal, North West and Gauteng from 1985 to 2005. In 2004, she obtained her Honours degree in Education Management and Leadership from UJ. Her Master's in Education Management and Leadership was obtained from UJ in 2007. She has been employed as a Deputy Education Specialist at the Johannesburg Central District since 2008.

This research focused on the education district's role in strengthening principals' instructional leadership capacity to improve educational outcomes. A qualitative, single case study was employed in one education district in Gauteng. Data collection using individual and focus group interviews was conducted with ten principals and fourteen district officials. Findings indicate that district officials' deeper engagement with principals about school related instructional challenges is required. Principals' continuous professional development for instructional leadership is neglected in response to their challenging and changing educational environments. Day-to-day distractions shift the principals' focus from instructional matters. The study recommends that districts formulate a model for principals' instructional leadership. Principals can use a distributive leadership approach to manage distractors from their instructional leadership role. The study contributes to new



knowledge in the form of guidelines for school districts to enhance principals' instructional leadership and an innovated framework that highlights the role of school districts.

**Supervisor:** Dr SR Naicker

**Maseko, Vusi Joseph Collen Kasonde (PhD)**

Vusi Maseko matriculated at Ndeke Secondary School in 1985. He initially qualified as a technician and subsequently as an artisan in 1992. Vusi obtained a Postgraduate Certificate in Education from the University of South Africa (Unisa) in 2006 and thereafter a BEd Honours in Educational Administration in 2012. Further solidifying his expertise, he earned a National Diploma in Occupational Directed Education and Training Practices in 2018. In 2015, Maseko graduated with distinction (Magna Cum Laude) from Concordia University, receiving an MEd in Curriculum and Instruction (Leadership). He has held various positions in the educational sector, such as a schoolteacher, university tutor at Ahmadu Bello University, lectured in the Technical and Vocational Education and Training (TVET) sector, and served as a Senior Education Specialist. Currently, Maseko serves as the Distance Learning, Online Learning, and Lecturer Support Systems (DOLLS) Manager at a TVET college and is keen on pursuing a trajectory in the higher education sector.

This study examined the relationship between professional collaboration and the formation of Professional Learning Communities (PLCs) in TVET colleges in Gauteng, South Africa. The Department of Higher Education and Training has mandated the implementation of PLCs as part of the Integrated Strategic Planning Framework for Teacher Education and Development. The study employed a survey methodology, selecting 290 participants through cluster random sampling. Data collection employed a composite instrument integrating the South African

Standard on Principalship and the Professional Learning Communities Assessment - Revised. The results revealed a significant relationship between professional collaboration and the formation of PLCs, with the hypothesis tested at a 0.05 significance level. A contribution to the field was the development of two novel instruments used in the study and the sub-Sahara PLC implementation framework, facilitating the establishment of effective PLCs in sub-Saharan African TVET colleges.

**Supervisor:** Prof BR Grobler

**Co-supervisor:** Dr SR Naicker

## **Michaels, Leone Chris-Zelda (PhD)**

Mrs Leone Chris-Zelda Michaels began her teaching career with a BEd degree, which she completed in 1995. She obtained her BEd Honours in 1998, specialising in Educational Psychology. In 2017 she completed an MEd degree in Information and Communication Technologies at the University of Johannesburg (UJ). Mrs Michaels was an English teacher at a secondary school for five years before she was employed as a Student Marketer at the then Technikon of the Witwatersrand, now part of UJ, from 2001 to 2018. She was later employed at the UJ Postgraduate School for three years and is currently employed in the University Relations Division at UJ.

This study explored the different types of support given to online undergraduate and postgraduate students in attaining academic success during the COVID-19 pandemic. A qualitative, grounded theory research methodology was employed using online questionnaires, augmented by unstructured, individual, in-depth interviews, within the social constructivist paradigm. Data was analysed using an inductive, thematic, content analysis approach to identify possible tensions in the activity system of students engaging in the BEd Honours degree programme. Findings show that most students successfully negotiated online learning, but that a combination of support systems was required to assist students to attain academic prowess. The findings also support the feasibility of online student support as a viable pedagogic mode. This study's contribution was the conceptualisation of a student-support strategy, which could inform university policies to assist in the preparation of more

engaging and effective online teaching and learning curricula beyond the pandemic.

**Supervisor:** Prof SM Motala

**Co-supervisor:** Prof GV Lautenbach

**Msimanga, Khehla Isaac (PhD)**

Khehla Isaac Msimanga completed his MEd in Educational Leadership and Management Law and Systems in 2011 at Northwest University (Vaal Triangle Campus). Mr. Msimanga served as a post level 1 educator for a total of 28 years.

The candidate conducted a study on managing access control as a means of ensuring safety in Sedibeng West District schools. A qualitative research approach was applied. Findings revealed that safety and security is not solely the responsibility of the principal. The School Governing Bodies (SGBs) of township secondary schools are unable to use their powers to guarantee the safety of learners, teachers, principals, and other staff members. This has become evident with the discovery that many schools do not have policies and, therefore, do not have guiding principles to formulate such policies. The study contributes to new knowledge in the sense that it shows that in order to monitor access control and safety at schools, all role players need to work together.

**Supervisor:** Prof PJ du Plessis

## **Penn, Mafor (PhD)**

Mafor Penn matriculated in 2001 from St. Bedes College Ashing Kom. She obtained a BScHons in Biochemistry from the University of Buea, Cameroon, in 2005. She started her career as a Research Scientist and subsequently relocated to South Africa, where she worked as a Science teacher from 2009- 2016. From 2015 till date, she has obtained several degrees from the University of Johannesburg (UJ), including a PGCE in Natural and Life Sciences Education (with distinction), a BEd Honours in Science Education (with distinction) and an MEd in Science Education (with distinction), for which she was also awarded the Chancellor's medal in 2019. She has been employed as a Lecturer in the Faculty of Education at UJ since 2018 and currently teaches the Science modules in the Department of Childhood Education (DCE) at UJ.

This research investigated third-year pre-service Natural Sciences teachers' experiences of Virtual and Augmented Reality (VAR)-enhanced inquiry-based learning of science concepts. A design-based research approach, which integrates mixed-method research parameters for collecting and analysing data, was employed. Thirty-two pre-service teachers (PST) were selected from a South African university to participate in the study. Content tests and the perception of engagement survey were used for collecting quantitative data, while qualitative data was gathered by field notes and interviews. Results revealed a positive shift in participants' perception of engagement in VAR-enhanced learning and content test achievement scores from pre- to post-VAR learning interventions. VAR technology was

reported to be transformative and to support visualisation, engagement, guided inquiry, creativity, and critical thinking for PSTs. The contributions of the study include contextually relevant design principles for VAR integration, as well as a proposed pedagogical framework for VAR integration in PST education. Research findings from the study have been presented at three international conferences and have also formed the basis for a published book chapter.

**Supervisor:** Prof UD Ramnarain



## **Rasool, Kharoon Nisha (PhD)**

Kharoon Nisha Rasool matriculated from Nirvana Secondary School, Johannesburg, in 2008. She began her teaching career with a BEd degree obtained from the University of the Witwatersrand in 2012. This was followed by a BEd Honours degree (with distinction) in 2015, also from the University of Witwatersrand. In 2017, she acquired an Advanced Certificate in School Management and Leadership from the University of Johannesburg. In 2018, she secured a Master's in Education degree (with distinction) from the University of the Witwatersrand. Ms Rasool has served as an educator in a public secondary school for the past 10 years. In 2021, she was promoted to Departmental Head, overseeing the FET phase, with a focus on Consumer Studies within this division.

This qualitative study utilised symbolic interactionism to explore the role of the School Management Team in the professional development of teachers regarding Information and Communication Technology (ICT) to enhance classroom pedagogy. The study was grounded within the Cultural Historical Activity Theory. Data were generated from 18 participants in six schools that were part of the "Classroom of the Future" initiative. The findings illustrated the need to assign the responsibility of ICT teacher training to the Gauteng Department of Education. The study also highlighted the significance of school leaders' approach and attitude, providing an intriguing viewpoint regarding educators' age and their enthusiasm towards ICT technology. The study's contribution is a model informing instructional leadership practices that create a culture

of cohesive ICT capacitation. This study also informs policy, practice and legislation that governs ICT implementation in public schools. A chapter from this research has been included in a book published internationally.

**Supervisor:** Dr P Naidoo

# FACULTY OF SCIENCE

## DOCTORAL LAUDATIONS

**Daji, Grace Abosede (D Tech)**

Mrs. Daji was born in Lagos (Nigeria). In 2014, she obtained her BSc degree in Microbiology from Crawford University (Nigeria). In 2017, she obtained her MTech degree in Food Technology from the University of Johannesburg and enrolled for a DTech degree in Food Technology at the same University. She is passionate about food quality and is responsible for quality-checking manufactured products at Sainsbury's United Kingdom.

In her doctoral study, Mrs. Daji adopted response surface methodology (RSM) for the optimal production of *mahewu* (a prominent Southern African cereal fermented product) from yellow and white maize grains. After optimization of processing conditions (fermentation time, fermentation temperature, and boiling time), different inocula were used to obtain *mahewu* from the grains adopting optimal processing conditions. Afterward, an investigation into their composition (structural, morphological, physicochemical, nutritional, and health-promoting properties) and bacterial microbiota was conducted. Insights into *mahewu* composition and an overview of the influence of maize variety and inoculum type were provided. The latter part of the study adopted a gas chromatography-metabolomics approach for deciphering overall metabolites contributing to product differences. This study is a foundation for the optimal fermentation conditions for desirable and

improved *mahewu* from different inocula. The study has led to two publications in international peer-reviewed journals.

**Supervisor:** Prof OA Adebo

**Co-supervisor:** Prof E Green

## **Askes, Miles (PhD)**

Mr. Askes was born in the South African town of Alberton, in Gauteng province, and matriculated from Marais Viljoen High School. Due to his German heritage on his mother's side, Mr. Askes also holds dual German citizenship. He obtained an MSc in mathematics with distinction from the University of Johannesburg. Following this, Mr. Askes enrolled for a PhD in mathematics at the University of Johannesburg in 2020, and he will be accepting a postdoctoral research fellowship at Stellenbosch University after his graduation.

In his doctoral thesis, Mr. Askes proves an additive characterization of the spectral rank of a Banach algebra element and uses it to solve a spectral preserver problem that generalizes many classical results in this area. Furthermore, using the aforementioned characterization, the candidate was also able to formulate a "spectral" definition of rank which can be considered in the more abstract setting of rings. He then developed the theory surrounding this new spectral definition of rank and studied its connection with the so-called algebraic rank of an element in a ring. Specifically, Mr. Askes established the deep result that if  $R$  is a semiprimitive and torsion-free ring, then the spectral and algebraic rank of any element in the socle of  $R$  coincides. The candidate has presented his work at local and international conferences and published his original contributions in the prestigious peer-reviewed *Journal of Mathematical Analysis and Applications*.

**Supervisor:** Dr FP Schulz

**Co-supervisor:** Prof RM Brits

## **Brendler, Thomas (PhD)**

Mr Brendler was born in Zwickau (Germany) and started his career as a researcher, consultant, and regulatory specialist in the natural product industry in Europe in the early 1990s. His work focuses on all aspects of herbal product development in medicine, food, and cosmetics, as well as their registration and licensing. In 2005 he co-founded the Association of African Medicinal Plants Standards. He has authored, co-authored, edited, and contributed to a wide range of publications on phytotherapy and natural product regulation. He relocated to the United States after spending a year as a visiting scholar at Rutgers University (NJ). He has been a member of the US Pharmacopoeia Botanical Dietary Supplements & Herbal Medicines Expert Committee since 2015. He enrolled for a PhD at the University of Johannesburg in 2015 and is currently affiliated with Traditional Medicinals Inc, Rohnert Park, California as a principal scientist.

In his doctoral study, Mr Brendler studied how southern African traditional medicines became established natural products in Europe in various regulatory environments and categories. In 10 case studies, he elucidated and described pathways to commercialization with a focus on ingredient identity and quality, resources, and supply chain management, efficacy, and safety regulations affecting innovation at the country of origin as well as product categories in the target market, intellectual property, traditional knowledge, ethics and access- and benefit-sharing. Commercializing useful indigenous plants as novel medical and food products can play an important role in the

socio-economic development of southern Africa. This study provides important insights as to what specific factors contribute to success or failure in developing new natural products. The candidate has presented his results at three local and four international conferences and published seven peer-reviewed journal articles.

**Supervisor:** Prof B-E van Wyk

## **Cilliers, Michael (PhD)**

Mr Cilliers was born in Bethlehem but grew up in Krugersdorp. He obtained an MSc in Computer Science in 2016 from the University of Johannesburg. Mr Cilliers started his professional career as a lecturer at the University of Johannesburg where he lectured multiple Computer Science and Informatics modules. In 2017 he joined a multinational computer technology corporation in a software developer role. He worked his way up and is currently a principal member of the technical staff.

In his doctoral study, Mr Cilliers investigated methods of maintaining population diversity in evolutionary algorithms. Increased population diversity would allow the algorithm to better adapt to changes in the search space. The research evaluated multiple methods of maintaining diversity. The first method examined the addition of gene methylation to the evolutionary algorithm. This addition resulted in non-coding genes which acted as a reservoir of genetic diversity even when the diversity of the coding genes diminished. Multiple variations of this method were developed that differed in the way that the gene methylation were managed. Speciation was also examined as a mechanism for maintaining diversity. By imitating parapatric speciation, diversity can be maintained between the species, even if the diversity of the members of the same species diminishes. The candidate presented this work at three international conferences.

**Supervisor:** Prof DA Coulter



## **Gatyeni, Siphokazi Princess (PhD)**

Ms. Gatyeni was born in Eastern Cape province, South Africa, and holds an MSc in Mathematics from the University of Stellenbosch. She enrolled for her doctoral studies at the University of Johannesburg in 2020 and was working as an assistant lecturer in the Department of Mathematics and Applied Mathematics at the University of Johannesburg during her studies.

The candidate developed three mathematical models of COVID-19, in which optimal control, stigma, and stochasticity were utilized to understand disease dynamics. The mathematical models' steady states were analysed, and the stabilities were determined using the basic reproduction numbers. The models were fitted to data from South Africa. A continuous-time Markov chain model was used to determine the probability of disease persistence and extinction using the Bienaymé–Galton–Watson branching processes. The results of the numerical simulations for the first model pointed to the use of masks and social distancing as the best strategies for reducing COVID-19 infection, followed by other control measures. The second model showed that stigma significantly sustains COVID-19 in the population. While the third model showed that stigmatizing and defaulting self-isolated individuals impacted COVID-19 disease spread significantly. The candidate published two peer-reviewed articles and presented her work at three international and one local conference.

**Supervisor:** Prof F Nyabadza

**Co-supervisor:** Prof F Chirove

## **Hamany Djande, Claude Yasmine (PhD)**

Ms Hamany Djande was born in Yaounde, Cameroon in 1989. She holds a BSc degree in Biochemistry (option Pharmacology), obtained at the University of Dschang in Cameroon. At the University of Johannesburg she completed her BSc(Hons) degree in Biochemistry in 2015 and her MSc degree (cum laude) in the same field in 2018. Ms Hamany Djande is currently conducting post-doctoral research in plant metabolomics at the University of Johannesburg.

In her PhD study, Ms Hamany Djande profiled the composition of secondary metabolites in different cultivated varieties of barley, with a focus on protective phenolics and defense-related compounds. She also used untargeted and targeted metabolomics approaches with chemometric tools to elucidate the metabolomic architecture and specialised metabolism involved after treatment with dichlorinated inducers of plant immunity. From her doctoral research, Ms Hamany Djande identified discriminant biomarkers and developed an efficient method to differentiate among barley cultivars. Subsequently, she investigated and established the metabolic adaptation and reconfiguration in naïve and primed barley plants in response to a fungal pathogen. Hordatines, antifungal barley-specific metabolites, and their precursor metabolites were identified as important phytoanticipins in the plant. Her work has numerous applications in the agricultural field for crop identification and protection. Ms Hamany Djande's work resulted in one review article and four research papers, all published in accredited international journals.

**Supervisor:** Prof IA Dubery  
**Co-supervisor:** Prof L Piater  
**Co-supervisor:** Dr F Tugizimana

## **Lombard, Natasha (PhD)**

Natasha holds an MSc in Botany (*Cum Laude*) from the University of Johannesburg, awarded in 2018, and enrolled for a PhD at the University of Johannesburg in the same year. She has been working as a full-time researcher in plant taxonomy at the South African National Biodiversity Institute in Pretoria since 2019. Her work focuses on the plant families Santalaceae, Iridaceae, and Orchidaceae. Other research interests include phylogenetics and phylogenomics, phytochemistry, and ethnobotany. To date Natasha's research outputs include eight peer-reviewed journal articles, and she has presented her work at eight national and international conferences.

In her doctoral study, Natasha studied the systematics of the hemi-parasitic plant genus *Thesium*. This large and globally distributed genus is known for its outdated and problematic taxonomy. Natasha compiled the first complete taxonomic synopsis of the genus since 1857, recognising 328 species, which will serve as an invaluable resource for all future research on the genus. The synopsis is augmented with detailed taxonomic revisions of selected problematic species groups and the description of two South African species new to science. She also showed for the first time that variation patterns in phenolic compounds have chemophenetic value, particularly at the species level. Numerous *Thesium* species were found to be of medicinal and food value in Africa and Asia, highlighting the genus's economic importance and commercial potential. Natasha has presented her doctoral work at five local and

international conferences and has published five peer-reviewed journal articles.

**Supervisor:** Prof B-E van Wyk

**Co-supervisor:** Dr MM le Roux (South African National Biodiversity Institute)

**Co-supervisor:** Dr F Forest (Royal Botanic Gardens, United Kingdom)

**Pretorius, Maria Moller (PhD)**

Ms Pretorius completed her undergraduate studies in Zoology, Entomology and Genetics and obtained an MSc in Entomology from the University of the Free State in 2017. She enrolled for a PhD in Zoology, at the University of Johannesburg in 2018 and is currently conducting postdoctoral research at the University of Pretoria.

In the doctoral study, the effects of metal pollution on the African sharptooth catfish (*Clarias gariepinus*) and its associated parasite (*Lamproglena clariae*) were studied in the Vaal River, South Africa. Parasite prevalence and intensity were negatively impacted in polluted compared to pristine environments. Furthermore, metals accumulated in higher concentrations in the host and parasites than in the water. Comparing host and parasite tissue confirmed that biomagnification occurred in the blood-feeding parasites. Controlled laboratory exposures of eggs and larvae established that increased metal concentration caused incapacitation, alterations to host-finding behaviour and early death of larvae. It was confirmed that *L. clariae* is a reliable indicator of the accumulation and effect of metal pollution in the Vaal River. Continued pollution will cause local extinction of the species. The candidate presented results at four national and two international conferences. One article has been published, and one is in review in an ISI-accredited journal.

**Supervisor:** Prof A Oldewage

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## National Anthem of South Africa

Nkosi sikelel' Afrika  
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.