

UNIVERSITEIT  
iYUNIVESITHI  
STELLENBOSCH  
UNIVERSITY

**100**  
1918 · 2018

*Graduation Ceremonies*  
**4 April - 7 April**

*Gradeplegtighede*  
**4 April - 7 April**

**2022**

## *Ons Visie 2040*

Die Universiteit Stellenbosch sal Afrika se voorste navorsingsintensiewe universiteit wees wat wêreldwyd as uitnemend, inklusief en innoverend erken word en waar ons kennis tot diens van die samelewing bevorder.

## *Ons Missie*

Die Universiteit Stellenbosch is 'n navorsingsintensiewe universiteit wat uitmuntende studente lok, talentvolle personeel aanstel en 'n wêreldklasomgewing bied; 'n plek wat met die wêreld verbind is en gemeenskappe plaaslik, op die vasteland en in die res van die wêreld verryk en transformeer.



## *Our Vision 2040*

Stellenbosch University will be Africa's leading research-intensive university, globally recognised as excellent, inclusive and innovative, where we advance knowledge in service of society.

## *Our Mission*

Stellenbosch University is a research-intensive university where we attract outstanding students, employ talented staff and provide a world-class environment; a place connected to the world, while enriching and transforming local, continental and global communities.

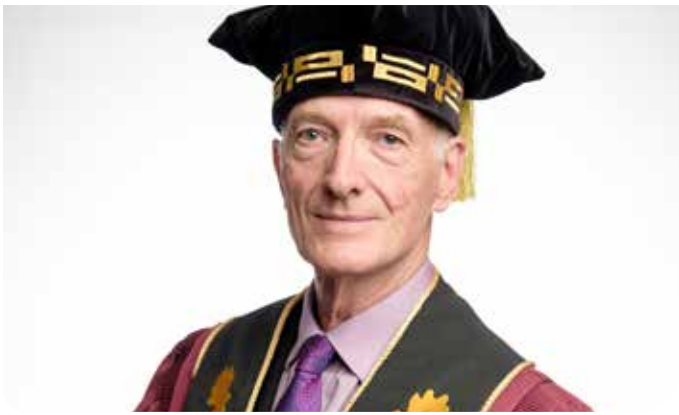


## *Umbonoweth ka2040*

IYunivesithi yaseStellenbosch iya kuba yiyunivesithi egxininise kuphando nekhokeleyo eAfrika, neyamkelwa kwihlabathi lonke njengegqwesileyo, equkayo neyenza inguqulelo, nalapho siqhubela phambili ulwazi sikhonza uluntu.

## *Ubizo Lwethu*

IYunivesithi yaseStellenbosch yiyunivesithi egxininise kuphando nalapho sitsala abafundi abagqwesileyo, siqesha abasebenzi abanesiphiwo kwaye sibonelela nemeko ekwinqanaba lehlabathi; indawo eqhagamshelene nehlabathi, ngelixa ichumisa kwaye iguqula uluntu lwengingqi, lwelizwekazi nolwehlabathi.



## **Oudregter | Retired Justice Edwin Cameron**

Kanselier | Chancellor

### ***Beste lid van die Universiteit Stellenbosch-gemeenskap***

Dit is weer eens vir my 'n eer en 'n voorreg om hierdie boodskap by ons gradeplegtighede te lewer.

Die afgelope jaar het die deursettingsvermoë, geduld en vindingrykheid van al ons studente en personeel beproef. Ek huldig jou vir jou vasberadenheid ten spyte van die Covid-19-pandemie en die ontsaglike uitdagings daaraan verbonde.

Dat jy my boodskap hier lees, beteken dat jy geseëvier het en dat jy gereed is om met 'n nuwe fase van jou lewe te begin. Al is die toekoms vir elkeen van ons onseker, het jy in 'n tyd van wêreldwye stres glansryke sukses behaal. Dit spreek boekdele oor jou toekoms!

Ek betuig my innige medelye met elkeen wat 'n geliefde aan die koronavirussiekte afgestaan het, en aan diegene wie se lewens op ander maniere deur die pandemie geraak is. Daar was donker dae, maar entstowwe en groter wetenskaplike en mediese begrip van Covid het ook hoop gebring.

Ons is vandeeweek besonder trots op al die grade, diplomas en sertifikate wat ons tydens hierdie plegtighede toeken. Dit getuig van die Universiteit Stellenbosch se belangrike bydrae tot Suid-Afrika, die res van ons vasteland en die wêreld in geheel. En ek sien daarna uit om te kyk hoe julle, ons graduandi, die samelewing sal vorm.

Studente, dosente, promotors, steundienstpersoneel en die bestuur – julle het almal 'n noodsaaklike rol vervul om seker te maak dat ons instellings steeds floreer.

En sonder die gewillige ondersteuning van vriende en familie, sou talle studente nie vandag hier gewees het om hul prestasies te vier nie – aan hulle dus ook 'n hartlike dankie.

Ons wil ook ons waardering uitspreek teenoor ons skenkers en borge, wat ons graduandi gehelp het om tot die einde toegewyd en doelgerig te werk, om vandag se kwalifikasies te kon behaal.

Aan elke graduandus:

Mag die vreugde en trots waarmee ons vandag jou prestasies vier, mettertyd tot iets selfs kosbaarder ontwikkel – 'n dieper verantwoordelikheds- en pligsbesef. Jou nuwe status bied jou die geleentheid om die kennis, vaardighede en netwerke wat jy deur jou studies op Stellenbosch opgebou het, te gebruik om ons land, die vasteland en die wêreld 'n beter plek te maak. Meer as ooit tevore moet ons nou die kans aangryp om tot die samelewing by te dra.

Alle moontlike sukses met die volgende fase van jou lewensreis word jou toegewens.

**Oudregter Edwin Cameron**  
**Kanselier**

### ***Dear member of the Stellenbosch University community***

Once again, it is an honour and a privilege for me to bring this message to our graduation ceremonies.

The past year has taxed the endurance, patience and resourcefulness of all our students and staff. I salute you for your determination in the face of the Covid-19 pandemic and its daunting challenges.

The fact that you are reading my message means that you have triumphed, and that you are ready to embark on a new phase of your life. Though for each of us the future holds uncertainties, you have achieved signal success, during a global period of stress. This says great things about your future!

I extend my respectful condolences to each person who has lost a loved one to coronavirus disease, and to those whose lives the pandemic has impaired in other ways. There have been dark days, but vaccines and greater scientific and medical understanding of Covid have also brought hope.

This week, we are immensely proud of all the degrees, diplomas and certificates we confer at these ceremonies. They attest to Stellenbosch University's key contribution to South Africa, the rest of our continent and to the world at large. And I am excited to see how you, our graduates, will shape society.

Students, lecturers, supervisors, support services staff and management – you have all played a critical part in ensuring that our institution has continued to thrive.

And without the support willingly given by friends and family, many students would not be here today, celebrating their achievements – so, to them, a heartfelt thank you.

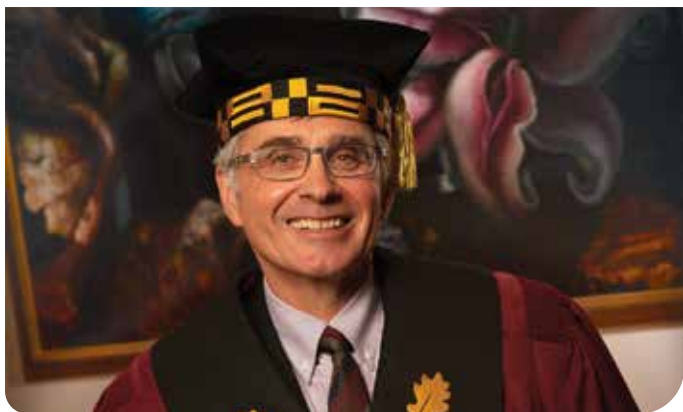
A further word of appreciation to the donors and sponsors who assisted our graduates to keep working with dedication and purpose, until the very end, to obtain today's qualifications.

To each and every graduate:

May the pride and joy with which we are celebrating your achievement today develop over time into something even more valuable – a richer sense of duty and responsibility. Your new status means you can use the knowledge, skills and networks from your studies at Stellenbosch to make our country, continent and the world better. More than ever, we must now embrace the chance to contribute to society.

I wish you every success for the next phase of your life's journey.

**Retired Justice Edwin Cameron**  
**Chancellor**



## Prof Wim de Villiers

Rektor en Visekanselier | Rector and Vice-Chancellor

### **Beste Matie**

Jy gradueer vandeeweek – baie geluk!

Neem 'n oomblik om dit te laat insink. Jy ontvang 'n kwalifikasie van die Universiteit Stellenbosch (US), een van die voorste instellings vir hoër onderwys op ons vasteland, en inderdaad in die wêreld. Dit is 'n merkwaardige prestasie wat wêreldwyd vir jou deure sal oopmaak en jou in jou loopbaan sal help wanneer jy nuwe horisonne verken. Dis iets om op trots te wees!

As 2020 'n naelloop en 'n geskarrel was, het 2021 gewys ons hardloop eintlik 'n marathon. Die tweede jaar van COVID-19 was net so uitdagend soos die eerste, en die derde vlaag koronavirusinfeksies het verdere onsekerheid en swaarkry veroorsaak. Die verlies van geliefdes het ons almal geraak.

Maar ons het ook uitdagings in geleenthede omskep en nuwe, innoverende werkswyses gevind.

In 2021 en die eerste deel van 2022 het ons die bekenstelling van opwindende, nuwe projekte aan die US beleef, soos die Skool vir Klimaatstudie. En danksy die ontwikkelinge by die Sentrum vir Epidemiese-reaksie en -innovasie (SERI) word baanbrekersnavorsing oor dringende kwessies gelewer.

Ons navorsingsuitsette en die impak van daardie navorsing is 'n bewys dat ons besig is om ons visie – om ons kennis tot diens van die samelewing te bevorder – suksesvol te laat realiseer.

Ondanks die pandemie kon ons ook in 2021 studente na ons kampusse terugbring en 'n stelsel van hibridiese leer volg.

Ek hoop dit het jou studente-ervaring verbeter. Universiteitsopleiding gaan immers oor méér as wat jy in die klas leer. Elke interaksie wat jy die afgelope paar jaar gehad het – akademies of sosiaal – sal jou toekoms help vorm.

Omdat jy 'n transformerende studente-ervaring gehad het, is jy nou toegerus om in 'n diverse wêreld die leiding te neem en uit te blink. Ek weet die lesse wat jy hier geleer het, sal jou goed te pas kom, en ek hoop jy dra die US se waardes – uitnemendheid, deernis, billikheid, respek en verantwoordbaarheid – lewenslank saam met jou.

Met die US se navorsers wat aanhou opgang maak, en met meer studieaansoeke en inskrywings vir 2022 as wat ons verwag het, lyk die toekoms uiters opwindend. Dis 'n toekoms wat ons graag met jou wil deel, so skakel asseblief in by ons alumni-netwerk. Gaan gerus na [www.matiesconnect.com](http://www.matiesconnect.com), waar jy met jou universiteitsvriende in aanraking kan bly, na werksaanbiedinge kan kyk, en mentors en netwerkgeleenthede kan opspoor – alles op een plek. Want die US sal altyd jou akademiese tuiste wees, en 'n sterk alumni-netwerk is nie net vir ons universiteit voordelig nie, maar sal ook jou toekomstige beroepsontwikkeling tot voordeel strek.

Sterkte met dit wat die toekoms inhou, tot ons weer ontmoet!

**Prof Wim de Villiers**  
Rektor en Visekanselier

### **Dear Matie**

This week you are graduating – congratulations!

Take a moment to let that sink in. You are receiving a qualification from Stellenbosch University (SU), one of the top institutions of higher learning on our continent, and indeed the world. This is a significant achievement that will open doors globally, and assist you in your career as you head out into the world – something to be proud of.

If 2020 was a sprint, 2021 showed us that we were running a marathon. The second year of Covid-19 proved just as challenging as the first, with the third wave of coronavirus infections having created further uncertainty and suffering. The loss of loved ones has affected us all.

But we also turned challenges into opportunities and found new, innovative ways of work.

In 2021 and the first part of 2022 we have seen exciting new projects at our institution, such as the launch of the School for Climate Studies and developments at the Centre for Epidemic Response and Innovation (CERI) that deliver cutting-edge research on pressing issues.

Our research output, as well as the impact of that research, proves that we're succeeding in our vision to advance knowledge in service of society.

Despite the pandemic, we also succeeded in bringing students back to campus at the beginning of 2021 by means of a hybrid learning system.

I hope this improved your student experience. After all, obtaining a university education is about more than classroom learning. Every interaction you've had during the past few years – academic or social – will help shape your future.

Having had a transformative student experience, you are now prepared to lead and excel in a diverse world. I know the lessons you've learnt here will stand you in good stead, and I hope you will continue to live by SU's values – excellence, compassion, equity, respect and accountability.

With research at SU continuing to flourish, and student applications and enrolments for 2022 exceeding all expectations, our future prospects are very exciting. It's a future we'd like you to be a part of, so do stay in touch through our alumni network. Please visit [www.matiesconnect.com](http://www.matiesconnect.com), where you'll be able to maintain ties with your university friends, view job offers and find mentors and networking opportunities – all in one place. SU will always be your academic home, and a strong alumni network is not only beneficial for our university, but will also enhance your professional development going forward.

Good luck with what the future holds, until we meet again!

**Prof Wim de Villiers**  
Rector and Vice-Chancellor

### **Kanselier | Chancellor**

Retired Justice E Cameron, BAHons, LLd hc (Stell), LLB, BCL, MA, DCL hc (Oxford), LLd hc (King's College, London), LLd hc (Witw), LLd hc (St Andrews), LLd hc (Sussex)

### **Rektor en Visekanselier | Rector and Vice-Chancellor**

Prof WJS de Villiers, MB, ChB, MMed (Int), FCP (SA), DPhil, MHCM

### **Voorsitter van die Raad | Chairperson of Council**

Mr AV Moos, BA, BPhil, MBA

### **Uitvoerende Bedryfshoof | Chief Operating Officer**

Prof SA du Plessis, BComHons, MPhil, PhD

### **Viserektor (Sosiale Impak, Transformasie en Personeel)**

#### **Deputy Vice-Chancellor (Social Impact, Transformation and Personnel)**

Prof NN Koopman, BA, MTh, DTh

### **Viserektor (Leer en Onderrig) | Deputy Vice-Chancellor (Learning and Teaching)**

Prof D Ramjugernath, BScEng, PhD, MASSAf, FAAS, FSAAE

### **Viserektor (Navorsing, Innovasie en Nagraadse Studies)**

#### **Deputy Vice-Chancellor (Research, Innovation and Postgraduate Studies)**

Prof TE Cloete, MSc, DSc

### **Viserektor (Strategie, Globale en Korporatiewe Sake)**

#### **Deputy Vice-Chancellor (Strategy, Global and Corporate Affairs)**

Prof HC Klopper, BCur, MCur, PhD, MBA, FAAN, MASSAf

### **Registrateur | Registrar**

Dr P Retief, MA, DLitt

### **Dekane | Deans**

#### **AgriWetenskappe | AgriSciences**

Prof D Brink, BScHons, MScAgric, PhD

#### **Ekonomiese en Bestuurswetenskappe | Economic and Management Sciences**

Prof I Woolard, BSc, BAHons, PhD

#### **Geneeskunde en Gesondheidswetenskappe | Medicine and Health Sciences**

Prof EM Muller, MBChB, MRCS (Ed), FCS (SA), MMed, FACS, PhD

#### **Ingenieurswese | Engineering**

Prof JL van Niekerk, MEng, PhD, EMBA

#### **Krygskunde | Military Science**

Prof MS Tshela, MSc, PhD

#### **Lettere en Sosiale Wetenskappe | Arts and Social Sciences**

Prof AJ Leysens, MA, DPhil

#### **Natuurwetenskappe | Science**

Prof L Warnich, MSc, PhD

#### **Opvoedkunde | Education**

Prof MR Madiba, DLitt et Phil

#### **Regsgeleerdheid | Law**

Prof N Smit, BLC, LLB, LLd

#### **Teologie | Theology**

Prof RW Nel, BA, BTh, MTh, DTh

## **Altyd 'n Matie**

Geluk en welkom in die Universiteit Stellenbosch se alumni-familie! Jou gradeplegtigheid is 'n belangrike mylpaal, en ook die begin van jou voortgesette verbintenis met jou alma mater. Die Alumnikantoor is jou lewenslange skakel met die Universiteit.

Daar is vele maniere om in kontak te bly.

## **Tuiskoms-en-Familienaweek**

Die Universiteit se Tuiskoms-en-Familienaweek vir alumni vind vanaf Donderdag 8 September tot Saterdag 10 September 2022 op die Stellenboschkampus plaas. Inligting is by [www.matiesalumni.com](http://www.matiesalumni.com) beskikbaar.

## **Sluit aan by Maties Connect**

Ons [www.matiesconnect.com](http://www.matiesconnect.com)-platform sal jou help om jou professionele netwerk uit te brei, 'n werkgeleentheid te vind, jou besigheid te adverteer, vir 'n mentor te soek, alumni te kontak, en op die hoogste van gebeure by jou alma mater te bly.

## **Wees deel van 'n Alumnihub**

Die Universiteit se Ontwikkeling en Alumnibetrekkings-span vestig plaaslike en internasionale alumni-nawe (oftewel 'hubs') en takke om alumni in spesifieke streke met mekaar in verbinding te bring deur gereelde netwerk- en sosiale geleenthede aan te bied – aanlyn en in persoon. Vir meer inligting oor hoe om aan te sluit, as vrywilliger op te tree en wêreldwyd aan 'n hub of tak deel te neem, stuur 'n e-pos aan [alumnihubs@sun.ac.za](mailto:alumnihubs@sun.ac.za).

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## **Always a Matie**

Congratulations and welcome to the Stellenbosch University alumni family! Your graduation is a momentous occasion and marks the beginning of your continued relationship with your alma mater. The Alumni Office is your lifelong connection to the University.

There are many ways to stay connected.

## **Homecoming and Family Weekend**

The University's Homecoming and Family Weekend takes place from Thursday, 8 September to Saturday, 10 September 2022 on the Stellenbosch campus. Information is available on [www.matiesalumni.com](http://www.matiesalumni.com).

## **Join Maties Connect**

Our [www.matiesconnect.com](http://www.matiesconnect.com) platform will help you increase your professional network, find a job opportunity, advertise your business, search for a mentor, reach out to alumni, and keep up to date on what's happening at your alma mater.

## **Be part of an Alumni Hub**

The University's Development and Alumni Relations team establish alumni hubs and chapters both locally and internationally to connect alumni in specific regions with one another through regular networking and social events - both online and in person. For more information on how to join or to volunteer and participate in a hub or chapter, send an e-mail to [alumnihubs@sun.ac.za](mailto:alumnihubs@sun.ac.za).

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## **I-Matie ngalo Lonk' ixesha**

Sivuyisana nawe kwaye wamkelekile kusapho olungabo babesakufunda kwiYunivesithi yaseStellenbosch! Ukuthweswa kwakho isidanga lixesha apha elakha labaluleka, kwaye likwalixesha eliphawula ukuqalisa kwakho ubudlelwane obuqhubekayo kunye nale yunivesithi owawusakufunda kuyo. IOfisi yabo Babesakuba Ngabafunda Apha yiyo ekunxulumanisa neYunivesithi ubomi bakho bonke.

Zininzi iindlela zokuhlala uqhagamshelikile.

## **IMpelaveki yoBuyelo-khaya ubenoSapho**

IMpelaveki yoBuyelo-khaya ubenoSapho eyenzelwe abo babesakufunda apha yenzeka ukusuka ngoLwesine umhla we-8 kwinyanga yoMsintsi ukuya kutsho ngoMgqibelo umhla we-10 kweyoMsintsi 2022 kwikhampasi yaseStellenbosch. Iingcumbolobol ezithe vetshe zifumaneka ku-[www.matiesalumni.com](http://www.matiesalumni.com).

## **Joyina i-Maties Connect**

Iqonga lethu le-[www.matiesconnect.com](http://www.matiesconnect.com) liza kukunceda ekwandiseni inani leengcali onxibelelana nazo, ekufumaneni umcebisi onamava, ukufumana amathuba omsebenzi, ukwazisa ishishini lakho, ukufuna umcebisi onamava, ekufikeleleni kwabanye ababefunda apha nasekubeni uhlale usazi ngokwenzekayo ngale yunivesithi owawusakufunda kuyo.

## **Yiba yinxalenye yeQela labo baBesakuba ngaBafundi balapha**

Iqela loPhuhliso nezoNxibelelwano lwabo baBesakuba ngaBafundi balapha lisungula amaqela abo babesakuba ngabafundi apha netshapta zawo naza kuzinza kweli lizwe nakwamanye amazwe ukuze kunxibelelwane ngabo babesakuba ngabafundi apha abakwiingingqi ezithile oko kusenziwa ngokunxibelelana rhoqo nangeendibano zasekuhlaleni nge-intanethi nangobuso ngobuso. Ukuba ufuna iinkcukacha ezithe vetshe malunga nendlela yokujoyina okanye yokuvolontiya nokuthatha inxaxheba kwiqela okanye itshapta ehlabathini, thumela i-imeyili ku-[alumnihubs@sun.ac.za](mailto:alumnihubs@sun.ac.za).

# Gradeplegtighede | Graduation Ceremonies

## 1. 4 April 2022 (09:00)

<b>Fakulteit Opvoedkunde   Faculty of Education</b>	9
Doktorale Kwalifikasies   Doctoral Qualifications	
Ander Kwalifikasies   Other Qualifications	
<b>Fakulteit Teologie   Faculty of Theology</b>	10
Doktorale Kwalifikasies   Doctoral Qualifications	
Ander Kwalifikasies   Other Qualifications	
<b>Fakulteit Krygskunde   Faculty of Military Science</b>	12
Doktorale Kwalifikasies   Doctoral Qualifications	
Ander Kwalifikasies   Other Qualifications	

## 2. 4 April 2022 (13:00)

<b>Fakulteit AgriWetenskappe   Faculty of AgriSciences</b>	19
Doktorale Kwalifikasies   Doctoral Qualifications	
Ander Kwalifikasies   Other Qualifications	

## 3. 5 April 2022 (09:00)

<b>Fakulteit Regsgeleerdheid   Faculty of Law</b>	29
Doktorale Kwalifikasies   Doctoral Qualifications	
Ander Kwalifikasies   Other Qualifications	

## 4. 5 April 2022 (13:00)

<b>Fakulteit Geneeskunde en Gesondheidswetenskappe   Faculty of Medicine and Health Sciences</b>	36
Eregraad   Honorary Doctorate	
<i>Patrice Matchaba</i>	
Doktorale Kwalifikasies   Doctoral Qualifications	
Ander Kwalifikasies   Other Qualifications	

## 5. 5 April 2022 (17:00)

<b>Fakulteit Ingenieurswese   Faculty of Engineering</b>	46
Eregraad   Honorary Doctorate	
<i>Andries (Andy) Calitz</i>	
Doktorale Kwalifikasies   Doctoral Qualifications	
Ander Kwalifikasies   Other Qualifications	
Kanselierstoekenning   Chancellor's Award	
<i>Jan Wium</i>	

## 6. 6 April 2022 (09:00)

<b>Fakulteit Natuurwetenskappe   Faculty of Science</b>	57
Doktorale Kwalifikasies   Doctoral Qualifications	
Ander Kwalifikasies   Other Qualifications	

## 7. 6 April 2022 (13:00)

<b>Fakulteit Lettere en Sosiale Wetenskappe (Groep 1)   Faculty of Arts and Social Sciences (Group 1)</b>	67
BA (Humanities); BA (International Studies); BA (Human Resource Man); BA (PPE); BA (Development and Environment); BA (Social Dynamics); BA (Socio-Informatics); BA (Sport Science); BAHons (History); BAHons (Geography and Environmental Studies); BAHons (Philosophy); BAHons (Political Science); BAHons (Psychology); BAHons (Social Anthropology); BAHons (Sociology); MA (Clinical Psychology); MA (Geographical Information Systems); MA (Geography and Environmental Studies); MA (History); MA (International Studies); MA (Philosophy); MA (Political Science); MA (Psychology); MA (Socio-Informatics); MA (Sociology); MPhil (Applied Ethics); MPhil (Monitoring and Evaluation Methods); MPhil (Science and Technology Studies); MPhil (Transdisciplinary Health and Development Studies); MPhil (Urban and Regional Science); MPhil (Information and Knowledge Management); M (Urban and Regional Planning); PGD (Monitoring and Eval); PGD (Disaster Risk Studies and Development); PGD (Knowledge and Information Systems Management); PhD (Geography and Environmental Studies A); PhD (History); PhD (Political Science); PhD (Sociology)	
Doktorale Kwalifikasies   Doctoral Qualifications	
Ander Kwalifikasies   Other Qualifications	

## 8. 6 April 2022 (17:00)

### Fakulteit Lettere en Sosiale Wetenskappe (Groep 2) | Faculty of Arts and Social Sciences (Group 2)

76

B Social Work; BA (Law); BA (Lang and Culture); BA (Fine Arts); BA (Drama and Theatre Studies); B Music; Dip (Practical Music Studies); Higher Certificate (Music); BAHons (Afrikaans and Dutch); BAHons (Ancient Cultures); BAHons (Chinese); BAHons (Drama and Theatre Studies); BAHons (English Studies); BAHons (French); BAHons (General Linguistics); BAHons (German); BAHons (Journalism); BAHons (Translation); BAHons (Visual Studies); BAHons (African Languages); BAHons (Visual Arts Illustration); BAHons Music; MA (African Languages); MA (Afrikaans and Dutch); MA (Ancient Cultures); MA (Drama and Theatre Studies); MA (English Studies); MA (French); MA (General Linguistics); MA (Journalism); MA (Translation); MA (Visual Arts); MMus; MPhil (Film Music); PGD (Music Technology); PhD (African Languages); PhD (Afrikaans and Dutch); PhD (Ancient Cultures); PhD (Drama and Theatre Studies); PhD (English Studies); PhD (General Linguistics); PhD (Social Work)

Eregraad | Honorary Doctorate  
*Diana Ferrus*

Doktorale Kwalifikasies | Doctoral Qualifications  
Ander Kwalifikasies | Other Qualifications

## 9. 7 April 2022 (09:00)

### Fakulteit Ekonomiese en Bestuurswetenskappe (Groep 1) | Faculty of Economic and Management Sciences (Group 1)

83

BCom (Industrial Psychology); BCom (International Business); BCom (Law); BCom (Management Sciences); BCom (Mathematical Sciences); BComHons (Business Management); BComHons (Financial Risk Management); BComHons (Human Resources Management); BComHons (Industrial Psychology); BComHons (Logistics Management); BComHons (Mathematical Statistics); BComHons (Operations Research); BComHons (Transport Economics); MCom (Business Management); MCom (Financial Risk Management); MCom (Human Resources Management); MCom (Industrial Psychology); MCom (Logistics Management); MCom (Mathematical Statistics); MCom (Quantitative Management); MCom (Statistics); MCom (Taxation); MCom (Transport Economics); MPhil (HIV/AIDS Management); PGD (Marketing); PGD (HIV/AIDS Man); PGD (Strategic Human Res); PGD (Transport and Logistics); PhD (Industrial Psychology); PhD (Statistics)

Doktorale Kwalifikasies | Doctoral Qualifications  
Ander Kwalifikasies | Other Qualifications

## 10. 7 April 2022 (13:00)

### Fakulteit Ekonomiese en Bestuurswetenskappe (Groep 2) | Faculty of Economic and Management Sciences (Group 2)

91

BAccLLB; B Accounting; BCom (Actuarial Science); BCom (Economic Sciences); BCom (Financial Accounting); BCom (Management Accounting); BComHons (Economics); BComHons (Management Accounting); BComHons (Statistics); MAcc; MCom (Actuarial Science); MCom (Computer Auditing); MCom (Economics); PGD (Accounting); PGD (Actuarial Science); PhD (Agricultural Economics); PhD (Economics)

Doktorale Kwalifikasies | Doctoral Qualifications  
Ander Kwalifikasies | Other Qualifications

Kanselierstoekenning | Chancellor's Award  
*Johan van Rooyen*

## 11. 7 April 2022 (17:00)

### Fakulteit Ekonomiese en Bestuurswetenskappe (Groep 3) | Faculty of Economic and Management Sciences (Group 3)

99

Diploma in Public Accountability; Advanced Diploma in Public Accountability; Dip (Sustainable Development); B in Public Admin Hons; BComHons (Public and Development Management); MBA; MCom (Public and Development Management); MPA; MPhil (Development Finance); MPhil (Environmental Management); MPhil (Futures Studies); MPhil (Management Coaching); MPhil (Sustainable Development Planning and Management); PGD (Business Management and Administration); PGD (Development Finance); PGD (Environmental Man); PGD (Financial Planning); PGD (Future Studies); PGD (Leadership Development); PGD (Project Management); PGD (Sustainable Development); PhD (Business Management and Administration); PhD (Development Finance); PhD (Public and Development Management)

Doktorale Kwalifikasies | Doctoral Qualifications  
Ander Kwalifikasies | Other Qualifications





## **Fakulteite**

Opvoedkunde

Krygskunde

Teologie

**4 April 2022 - 09:00**

## **Faculties**

Education

Military Science

Theology

**4 April 2022 - 09:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

*Staan asseblief*

1. Akademiese prosesie kom die saal binne.
2. Speel van die Nasionale Lied.
3. Formele konstituering deur die Visekanselier.
4. Verwelkoming deur die Visekanselier.
5. Voorstelling van kandidate wat kwalifikasies ontvang deur die dekaan van die fakulteit en toekenning van kwalifikasies deur die Visekanselier.
6. Sluiting deur die Visekanselier.
7. Akademiese prosesie verlaat die verhoog.

## Programme

*Please stand*

*Please stand*

*Please sit*

*Please stand*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Vice-Chancellor.
4. Welcome by the Vice-Chancellor.
5. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Vice-Chancellor.
6. Closing by the Vice-Chancellor.
7. The academic procession leaves the stage.

# Fakulteit Opvoedkunde | Faculty of Education

## DOKTORALE KWALIFIKASIES | DOCTORAL QUALIFICATIONS

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### **DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY**

**BESTER**, Marianne (Curriculum Studies)

#### **An integrative approach to the development of expertise in higher education: An inquiry into the curriculum of a professional master's degree programme**

This study investigates the multifaceted and complex concept of expertise. Using a multi-perspectivist disciplinary lens, a heuristic conceptual tool is developed to evaluate and promote expertise in professional curricula in higher education. By applying activity theory and legitimation code theory to a current professional master's programme at one South African university, the study offers new insights into the development of professional expertise through a multilayered and multidimensional curriculum framework. The framework can be used as a heuristic instrument to help university academics and curriculum developers create, evaluate and renew education and training programmes relating to professional expertise.

*Supervisor:* Prof E Bitzer

*Co-supervisor:* Prof M Fourie-Malherbe

**MARALACK**, John Lourens (Curriculum Studies)

#### **Contemporary issues in an Economics curriculum: Interpretive case studies with Economics teachers in the Cape Winelands district**

How well Economics teachers implement curriculum imperatives is closely tied to their understanding of the subject matter (knowledge) and their teaching approaches (pedagogies). This study explores teachers' conceptual understanding of "contemporary economic issues", as listed in the Curriculum and Assessment Policy Statement (CAPS), to establish how these understandings are translated into their teaching practices. The qualitative case study reveals how some teaching challenges relate to environmental and digital realities, inadequate infrastructure, limited resources, and the lack of continuous professional development. Yet it also confirms teachers' willingness and critical role as epistemic agents to achieve the definitional curriculum objectives.

*Supervisor:* Dr C America

*Co-supervisor:* Prof CPS Reddy



# Fakulteit Teologie | Faculty of Theology

## DOKTORALE KWALIFIKASIES | DOCTORAL QUALIFICATIONS

### DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY

**CHILONGOZI**, Mwawi Nyirenda (Practical Theology)

#### **Microfinance as a tool for socio-economic empowerment of rural women in Northern Malawi: A Practical Theological Reflection**

This study explores the nature and impact of existing savings-and-loans groups run by rural women in the communities of Bwengu and Bolero in Northern Malawi with a view to better understanding the role of the church in microfinance among rural women. The empirical findings indicate that microfinance is beneficial to individual women, their families and communities, and that the benefits include financial independence, child well-being and a reduction in gender-based violence. It is argued that churches should be encouraged to engage in such models of microfinance for the benefit of the entire community.

*Supervisor:* Prof NF Bowers-Du Toit

*Co-supervisor:* Prof LJM Claassens

**COBONGS**, Bitrus (Old Testament)

#### **Memories of Enslavement as Identity Formation in the Legal Collections of the Pentateuch**

In all three of the legal collections in the first five books of the Bible, enslavement memories (such as the introduction to the Ten Commandments: "I am the Lord your God, who brought you out of Egypt, out of the land of slavery") were used as a foundation for identity formation in different periods of ancient Israel's history. The memories of suffering were used to motivate an increasingly more dignified treatment of slaves in different societal contexts from the seventh century BCE onwards. This study challenges African Biblical scholarship to engage with their painful colonial past in a theologically constructive manner.

*Supervisor:* Prof HL Bosman

**HOMBANA**, Mphumezi (New Testament)

#### **The crucifixion and death of Jesus in Mark 15:21–41, from the perspective of its redaction history in the New Testament gospels**

This study investigates how the passion tradition of Jesus was redacted in the four canonical gospels. It analyses the use of possible source material in the Gospel of Mark, and how the Gospels of Matthew, Luke and John interpreted the Markan passion narrative. The redaction-critical analysis undertaken provides important insights into how Mark 15:21–41 was interpreted in different contexts during the first century, and contributes to the ongoing debate about the relationship between the Synoptic Gospels and the Gospel of John.

*Supervisor:* Prof MJ Nel

**KIM**, Kijoong (Systematic Theology)

#### **Cruelty to animals in the East Asian context: Andrew Linzey's animal theology in conversation with eco-theology**

Cruelty to animals poses a serious moral problem to the world today. This study revises humans' view of animals by offering a theological and ethical reinterpretation of our shared place and roles in creation. It addresses the implications of cruelty to animals in East Asia by engaging Andrew Linzey's pioneering work in animal theology, and selected resources from the field of eco-theology. The outcome is a reinterpretation of our understanding of God, humanity, and animals. These theological and ethical resources enable us to move away from anthropocentric theologies while promoting an organic and eco-centric understanding of the relationships between God, humans, and non-human animals.

*Supervisor:* Prof DA Forster

**MELLOWS**, Susan Pamela (Practical Theology)

#### **Social transformation through affirmation of human dignity: a case study of 'Learn to Earn'**

This study ascertains the contribution of spirituality in a faith-based organisation (FBO) towards attaining social transformation through the affirmation of human dignity. Based on the empirical evidence gathered in a case study of FBO Learn to Earn, it is suggested that this organisation assists those who are economically deprived to overcome powerlessness by activating their agency as their human dignity is affirmed and vocation is subsequently recovered. Therefore, the recent interest in the inclusion of spirituality in development discourse is to be welcomed as a beneficial addition to attaining social transformation.

*Supervisor:* Prof NF Bowers-Du Toit

**MUDZANIRE**, Suspicion (Missiology)

#### **A Missiological investigation into the role of the Church of Christ's medical missions as transformational development in Mashoko, Zimbabwe**

This study investigates the role of the Church of Christ's medical missions in promoting transformational development in the rural Zimbabwean community of Mashoko. The investigation considers a whole-person approach to well-being as a critical development requirement and missional issue demanding a more comprehensive response from the church. The study reveals a persistent Western, compartmentalised view of human well-being in the ministry praxis and delivery model. It is argued that an in-depth appropriation of the missional hermeneutic of "mission as transformation" promotes a more comprehensive medical ministry that is responsive to the health needs of rural African communities.

*Supervisor:* Prof Henry Mbaya

**OWIREDU**, Kennedy Kwame (New Testament)

**Translating loudaios Concepts in Multifaceted Contexts: An Intertextual Approach to the Rhetoric of 1 Corinthians 15**

Using intertextuality to uncover the rhetoric of the Pauline text of 1 Corinthians 15, this study demonstrates that Paul's loudaios, ethnoculturally nested identity remains central and relevant to an understanding of his person and use of the Scriptures of Israel. Anachronistic Christian categories, generalised historical-critical methodologies and Western ideologies have fed into colonialist and imperialist agendas against African and other Two-Thirds World readers. In ways analogous to how Paul sustained his objective in negotiating the identities of his multifaceted Gentile audiences, Bible reading and translation in Africa can glean much from the Pauline paradigm.

*Supervisor:* Prof J Punt

**PEARSON**, Steve (Systematic Theology)

**Perspectives on human identity and the doctrine of God: A critical reflection on identity in a market economy**

This study examines the work of British trinitarian theologian Colin Gunton, seeking to reposition identity as relational by re-examining the doctrine of God. Central to Gunton's model is a criticism of individualism, both in church and society, as offering a deceptive paradigm. Gunton's views are then contrasted with selected contemporary Christian engagements with the market economy, which, the study argues, is individualism's most formative institution. It is concluded that contemporary theology is often an unwitting consumer of individualism. The consequence is seen in a more transactional theology of atonement, and an engagement with the market dominated by ethics and evangelism.

*Supervisor:* Prof DA Forster

**PEMBAMOYO**, Eston Dickson (Missiology)

**A Missional Theological Response to Environmental crisis in Malawi**

This study investigates 'gaps' in the church's response to the environmental crisis in Malawi. It argues that a missional theological response of the church, entrenched in missio Dei, can influence effective ecological stewardship and ensure full participation of all stakeholders in earth's conservation. The study discovers that, despite internal conflicts, geopolitical influences, institutionalism, an identity crisis, and issues of power and authority, the church has the potential and ability to promote environmental justice and help reduce the current ecosystem and biodiversity challenges in Malawi and Southern Africa.

*Supervisor:* Prof Henry Mbaya

**SIMON**, Christiane Johanna (Systematic Theology)

**'Digital Surveillance' from the Perspective of 'Christian Freedom': A Theological Assessment in Conversation with Martin Luther and Dietrich Bonhoeffer**

This study critically evaluates digital surveillance and its dehumanising effects from the vantage point of Christian freedom in the tradition of the Protestant Reformation. Against digital objectification and an ambiguous understanding of the human person, the study affirms the role of responsibility and the value of individual personhood. It indicates how an account of freedom based on justification by grace and oriented towards others can overcome a self-serving notion of freedom as convenience, safety and predictability. As an antidote to dependency, fear of uncertainty, digital self-validation and irreversible data records, it can facilitate both authentic self-realisation and responsible, ethical action.

*Supervisor:* Prof RR Vosloo

**TIBUS**, Van Cliburn (Missiology)

**Integral Mission and Drug Abuse in the Changing Landscape: Mobilizing the United Church of Christ in the Philippines 'Together Towards Life'**

This study identifies a three-dimensional research problem: disunity in churches' response to the war on drugs in the Philippines; identity constructs and powerlessness as contributors to substance abuse, and analyses and actions excluding complex factors that shape religious and social transformations. The philosophy and analytics of critical realism inform the study's approach to identity, powerlessness, and the power of persons across religious and social contexts (relations, agency, structure and culture). A model of public witnessing (integral mission) is proposed that highlights visible and invisible powers in mobilising vulnerable persons and the United Church of Christ in the Philippines, as a postcolonial landscape.

*Supervisor:* Prof DX Simon

**VISSER**, Jacoba Maryna Helena (New Testament)

**Perfecting poverty: A rhetorical investigation of poverty and masculinities intersecting in James**

James constructs multiple relationships between first-century masculinities, poverty and perfection. The epistle invokes ideal masculinity, stressing self-control of own and other bodies, endurance and steadfastness. At the same time, however, by reversing their status and appearance with honour, the poor and vulnerable are given a new identity in the Jesus-following community. Exhorting Jesus followers in terms of contemporary gender ideals, James challenges societal norms in holding that perfect believers show honour to the poor because the perfect male God glorifies and exalts them. Going against the norms of the ancient society, therefore, James both confirms and reconstructs perfection in terms of masculinity and poverty.

*Supervisor:* Prof J Punt

*Co-supervisor:* Prof PBA Smit (*external*)



# Fakulteit Krygskunde | Faculty of Military Science

DOKTORALE KWALIFIKASIE | DOCTORAL QUALIFICATION

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## **DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY**

**KWAK**, Gerrit Werner (Military Science)

### **Developing a neo-regional transboundary marine protection policy framework between the navies of South Africa, Namibia and Mozambique**

This study analyses the marine protection policy frameworks of three Southern African Development Community (SADC) navies. It focuses on three key performance areas – governance, interoperability and capacity building – using a grounded-theory research design. The compromising influence of political volatility, economic pressures and constrained naval capabilities between the three navies necessitate a transboundary policy solution in support of a regional blue economy. The transboundary marine protection policy framework proposed in this study will be instrumental in improving ocean governance and repositioning SADC navies in a more supportive role in the social security programmes of each respective country and the region overall.

*Supervisor:* Prof JL Jansen van Rensburg

*Co-supervisor:* Prof KI Theletsane

# Fakulteit Opvoedkunde | Faculty of Education

## ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

### **Magister in die Wysbegeerte Master of Philosophy**

Bouwer, Willem Christiaan (Higher Education)  
Braak, Doulette (Higher Education)  
Dlamini, Batfobile Pearl (Education and Training for Lifelong Learning)  
Joubert, Daisy Christine (Education and Training for Lifelong Learning)  
Marais, Karel (Higher Education)  
Newton, Gillian (Education and Training for Lifelong Learning) (*cum laude*)  
Pillay, Dharshini (Education and Training for Lifelong Learning)

### **Magister in die Opvoedkunde in Opvoedkundige Sielkunde Master of Education in Educational Psychology**

Le Fleur, Whitney Grace  
Rabie, Cerise (*cum laude*)  
Rawlins, Liza-Mari  
Rocchi, Jacomien  
Rottaro, Samantha Lynn  
Wessels, Sonja (*cum laude*)

### **Magister in die Opvoedkunde Master of Education**

Adze, Emmanuel Teba (Education Policy Studies)  
Botha, Myrincia (Curriculum Studies) (*cum laude*)  
Lourens, Ilze (Curriculum Studies) (*cum laude*)  
Nieuwoudt, Maria (Curriculum Studies)  
Oellermann, Anchen (Educational Support) (*cum laude*)  
Shilamba, Mirjam Ndeitodino (Curriculum Studies)

### **Honneurs-Baccalaureus in die Opvoedkunde in Onderwysontwikkeling en Demokrasie Bachelor of Education Honours in Education Development and Democracy**

Mbebe, Mongezi  
Rix, Andre  
Tshakubi, Nomthandazo Beauty

### **Honneurs-Baccalaureus in die Opvoedkunde in Taalonderwys Bachelor of Education Honours in Language Education**

Botes, Deidre Monette (*cum laude*)  
De Fleuriot De La Coliniere, Michelle (*cum laude*)  
Less, Kelly  
Van Rhee de Van Oudtshoorn, Kristen

### **Nagraadse Onderwysertifikaat in Verdereonderwys- en Onderrigopleiding Postgraduate Certificate in Education in Further Education and Training Teaching**

Abrahams, Aqeelah  
Bowers, Serelia Gisela  
Brown, Kaylen Robin  
Foloti, Ntombizanele Portia  
Hendricks, Terri-Lee  
Herman, Leigh

Kalimashe, Nombongo  
Kilowan, Mègan Clementine  
Koopman, Ronel  
Mmaboshego, Yvette Kanyane  
Moon, Georgina Deborah (*cum laude*)  
Mungle, Philippa Sophie  
Ndyalivane, Amanda  
Ngakane, Lerato Daphne  
Rossouw, Chante Jonay  
Smith, Nicole Candice  
Sotondoshe, Lilitha Jamie-Lee (*cum laude*)  
Zenzile, Amanda  
Zindela, Asanda Nomfundo

### **Baccalaureus in die Opvoedkunde (Algemene Onderwys) Bachelor of Education in General Education**

Botha, Stephanie (Intermediary and Senior Phases)

### **Baccalaureus in die Opvoedkunde in Intermediêrefase-onderwys Bachelor of Education in Intermediate Phase Teaching**

Fischer, Alfred Hannes Dakota



# Fakulteit Teologie | Faculty of Theology

## ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

### **Magister in die Wysbegeerte**

#### **Master of Philosophy**

Nyoka, Ayanda (Religion and Culture) (*cum laude*)

### **Magister in die Teologie**

#### **Master of Theology**

Adams, Jill-Ann (Practical Theology: Clinical Pastoral Care)

Basson, Bruce Ashwin (Practical Theology: Ministry)

Bwosh, Samuel Deme (Practical Theology)

Els, Johannes Petrus Jacobus (Practical Theology: Clinical Pastoral Care) (*cum laude*)

Gouws, John Andrew (Practical Theology: Clinical Pastoral Care)

Karsten, Cornelia Elizabeth (Practical Theology: Ministry) (*cum laude*)

Madimabe, Lucas Sello (Practical Theology: Ministry)

Marais, Frikkie Evert (Practical Theology: Ministry) (*cum laude*)

Marais, Shaun Henry (Practical Theology: Youth Ministry)

Martin, Benjamin Ernest (Practical Theology)

Mashalaba, Gringoe Thandile (Practical Theology) (*cum laude*)

Mbata, Nobuhle Gladys (Practical Theology)

Niehaus, Heinrich Frederick (Systematic Theology) (*cum laude*)

Ntlapo, Headman (Missiology)

Potgieter, Rene (Practical Theology: Ministry)

Ragette, Joanita Ragette (Practical Theology: Clinical Pastoral Care)

Randall, Cornelius Johannes (Practical Theology: Clinical Pastoral Care) (*cum laude*)

Retief, Pieter Johannes (Practical Theology: Clinical Pastoral Care) (*cum laude*)

Snyders, Andrew Nicholas (Practical Theology: Ministry) (*cum laude*)

Tromp, Hendry Hesting (Practical Theology) (*cum laude*)

Vrey, Daniel Divan (Practical Theology) (*cum laude*)

### **Magister Divinitatis**

#### **Master of Divinity**

Buys, Amaryne (Ministry)

Fihla, Noxolo Wongakazi (Ministry)

Frieslaar, Michaeline Aliche (Ministry)

Jonaan, Don-Marco Algarth (Ministry)

Windvogel, Aidan Pierre (Ministry)

### **Nagraadse Diploma in Teologie**

#### **Postgraduate Diploma in Theology**

Baron, Aiden Jaques Daniel

Booyesen, Vuyokazi

De Kock, Stephanus Jacobus

Griffiths, Portia

Joseph, Philipa Joy

Lawrence, Christopher Frederick

Marais, Janneke Alta (*cum laude*)

Mgidlana, Pauline Nomonde

Saka, Arnold Kalembe Saka

September, Sue-Kyla

Tshala, Katshunga (*cum laude*)

### **Baccalaureus in die Teologie**

#### **Bachelor of Theology**

Godfrey, Divan Ryan

Hunter, Robyn

Layman, Astrid Nicole

Lumkwana, Maphuthuma Alfred

Masoga, Lerato Lekoba

Ntloni, Lumka

October, Lucia

Paulse, Heinrich

September, Raquel Brittany

Simelane, Celenkosini Hopewell

### **Baccalaureus Divinitatis**

#### **Bachelor of Divinity**

Mactavie, Lyndon Lloyd

Van den Berg, Andene



# Fakulteit Krygskunde | Faculty of Military Science

## ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

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### **Magister in die Krygskunde Master of Military Science**

Bester, Louis Andries (Security and Africa Studies) (*cum laude*)  
Choabi, Motshidisi Martha Solome (Military Science)  
Du Toit, Louis Michael (Military Geography)  
Joseph, Rhondine Candice (Organisation and Resource  
Management)  
Punt, Carl Heinrich (Military History)

### **Honneurs-Baccalaureus in die Krygskunde Bachelor of Military Science Honours**

Gold, Gertruida Rachel (Industrial Psychology (Mil)) (*cum  
laude*)  
Mlangeni, Nhlanhla Steven (Industrial Psychology (Mil))

### **Baccalaureus in die Krygskunde Bachelor of Military Science**

Du Toit, Berelize  
Letsatsi, Sophie Nkele  
Makhetha, Teboho Frances  
Olyn, Kevin Lenardus  
Rathogwa, Maanda





## **Fakulteit**

AgriWetenskappe

**4 April 2022 - 13:00**

## **Faculty**

AgriSciences

**4 April 2022 - 13:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

*Staan asseblief*

1. Akademiese prosesie kom die saal binne.
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## Programme

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*Please stand*

*Please sit*

*Please stand*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Chancellor.
4. Welcome by the Chancellor.
5. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Chancellor.
6. Closing by the Chancellor.
7. The academic procession leaves the stage.

### DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY

**ABRAHAMAS**, Brent (Conservation Ecology)

**A mixed-method approach towards the evaluation and assessment of integrative research programme outputs: The case of the Invasive Alien Plant management programme Working for Water**

This study follows a mixed-methods approach to assess the processes and research of the Working for Water programme. Findings reveal knowledge management deficiencies, and that the loss of key researchers will negatively affect existing collaboration networks. It is shown that research productivity and the relationship between researchers and decision-makers are negatively influenced by inadequate funding, increased competition and bureaucratisation. Addressing these shortcomings requires institutions to conduct and fund targeted, long-term transdisciplinary research that fosters collaboration and knowledge co-production. An integrated research strategy that accounts for knowledge management and the processes underpinning research and decision-making is required to ensure that research is not lost to decision-makers.

*Supervisor:* Prof K Esler  
*Co-supervisor:* Dr N Sitas

**ACKERMAN**, Simon Alexander (Forest Science)

**Industrial forestry compartment characteristics: the effect on end of rotation processes and the forestry supply chain**

Plantation forestry represents a unique rural industry that supplies the nation's needs for wood and wood-based products. Timber is harvested with a range of technologies and systems, but all require continuous development to improve economic sustainability as markets diversify and resources become more constrained. This study considers the impact of machine and investment size on harvesting costs and harvester efficiency, and the interaction between the two. It further investigates and quantifies the cost of variation in tree sizes for timber harvesting, showing a clear link between heterogeneity and cost. Finally, it looks at solutions for mechanising early thinning to promote homogeneity.

*Supervisor:* Prof B Talbot  
*Co-supervisor:* Dr R Astrup (*external*)

**ATKINSON**, Jonathan (Soil Science)

**Using Remote Sensing and geospatial information systems to classify local landforms using a pattern recognition approach to improve digital soil mapping**

Applying remote sensing and geospatial information systems, this study investigates using a pattern recognition approach to classify local landforms for better soil mapping. This is done against the backdrop of the multiscale problems of digital terrain analysis in KwaZulu-Natal. The study advances the existing state-of-the-art approach of terrain generalisation and scalar protocols for soil-landscape covariate applications across various sensor platforms and spatial scales. It also provides an improved terrain unit mapping concept using geomorphons. Leveraging geospatial solutions for improved natural resource assessments, the study describes the use of digital elevation model optimisation for uniform classification of soil-landscape properties for input to soil mapping applications.

*Supervisor:* Dr WP de Clercq  
*Co-supervisor:* Dr A Rozanov

**BLANCKENBERG**, Anelle (Horticultural Science)

**Quantity and quality losses of 'Crimson Seedless' grape and 'Packham's Triumph' pear along the supply chain and associated impacts**

The scale of postharvest losses is substantial. Reducing these will help create more sustainable and resilient food systems and reduce greenhouse gas emissions. Prior to this study, there was no primary research data on the magnitude of losses in the fresh-fruit value chain in South Africa. Based on the study findings, the financial losses due to postharvest losses of grapes and pears are estimated to be over R204 million and R831 million per annum respectively. The study also stresses the importance of quantifying postharvest losses along the supply chain, and the need for synthesised information to support evidence-based investments and policies.

*Supervisor:* Prof UL Opara  
*Co-supervisor:* Prof OA Fawole



**CLOETE**, Johanna Cecilia (Agricultural Economics)

**Investigating farm-level exit decisions and exit rates in commercial agriculture in South Africa, an agent-based approach**

This study – the largest of its kind in South African commercial agriculture to date – investigates farm-level exit decisions and exit rates. Clustering is used to identify the characteristics of producers planning to exit. In a subsequent regression analysis, the drivers of the ex-ante decision to exit or remain in agriculture are determined, highlighting the interplay between business climate and capital invested. Following an agent-based approach, these individual exit decisions are upscaled to assess the structural impact at a national level. The findings are critical to the ongoing interaction between demand for and supply of land in the land reform debate.

*Supervisor:* Dr WH Hoffmann

*Co-supervisor:* Dr JC Greyling (*external*)

**DE BEER**, Tarryn (Horticultural Science)

**Alternative postharvest technologies for the maintenance of Parthenon broccoli quality during export and domestic marketing**

This study evaluates the ability of postharvest technologies such as modified atmosphere packaging (MAP) and an ethylene inhibitor (1-MCP) to extend the storability of fresh headed broccoli for domestic and export marketing. The combined effect of these technologies is studied under industry-relevant cold chains at optimal and higher temperatures to preserve the fresh sensory, nutritional and visual quality. It is found that packaging types and 1-MCP treatment methods previously unexploited contribute to the commercial application of these technologies. These findings emphasise the value of the adoption of 1-MCP and MAP for quality maintenance in the domestic and export handling chain of broccoli.

*Supervisor:* Dr EM Crouch

*Co-supervisor:* Prof KI Theron

**ECKERT**, Michelle (Conservation Ecology)

**Conservation of soil biodiversity in South African timber production landscapes**

Soil arthropods are critical in maintaining resilient soils, yet are understudied globally. This study finds the conservation of remnant grassland and indigenous forest in production landscapes to be highly effective in mitigating the impact of forestry on soil biota across taxa and regions. Prioritising areas with high natural heterogeneity maximises landscape-level species turnover. It is found that soil biodiversity in commercial plantation areas is surprisingly high in terms of local, landscape-scale and functional diversity, and resilient to disturbances – mainly due to morphological and ecological adaptations for survival under plantation conditions. These findings constitute a valuable contribution to existing knowledge on soil fauna conservation.

*Supervisor:* Dr R Gagher

*Co-supervisors:* Profs JS Pryke, MJ Samways

**GHEZELBASH**, Atousa (Agricultural Economics)

**Organic wine: Choice and consumer value perceptions**

The consumption of organic wine is generally ascribed to altruistic motives, but this needs to be tested. To this end, this study offers a fresh theoretical perspective on how organic wine consumers develop and manifest their value perceptions, and why some float between organic and conventional wine. A constructivist grounded-theory approach is used to address these questions. Results show that consumers in the United Kingdom develop perceptions of value through an interplay between the emotions generated by organic wine and perceptions of the benefits obtained through consumption. The motivations of organic wine consumers are personal and selfish rather than altruistic.

*Supervisor:* Dr E Said

*Co-supervisors:* Prof N Vink, Dr M van der Merwe

**KOTZÉ**, Johann De Flamingh (Forest Science)

**Development of a national-level invasive alien plant monitoring system for South Africa**

The adverse environmental impact of biological invasions has given rise to extensive research and mitigation strategies in this field. A shortcoming, however, is the establishment and implementation of scientifically accurate, long-term methodologies for monitoring the distribution of invasive alien plant species across vast areas. Such distribution data is required at different scales, ranging from high-level policy formulation to detailed impact monitoring of mitigation programmes. This study proposes the design and implementation of a scientifically accurate, statistically rigorous and cost-effective methodology to monitor the range and abundance of major invasive alien plant species in South Africa.

*Supervisor:* Prof T Seifert

*Co-supervisor:* Prof DM Drew

**MAKATINI**, Gugulethu Joy (Plant Pathology)

**Characterisation and management of seedborne *Diaporthe* and *Fusarium* species associated with soybean in South Africa**

Seedborne species of *Diaporthe* and *Fusarium* result in losses to the soybean industry by reducing germination and causing disease. This study finds the diversity of species in these genera associated with soybean seed in South Africa to be much higher than previously thought. Although these pathogens generally occur at low incidences, individual seed lots can contain more than 70% infected seeds. *Diaporthe longicol/a*, *D. ueckerae* and *Fusarium verticillioides* are shown to be particularly virulent pathogens. Commercial biological control products have limited efficacy against these pathogens compared to chemical control, which is highly effective.

*Supervisor:* Dr CFJ Spies (*external*)

*Co-supervisors:* Prof A McLeod, Dr S Lamprecht (*external*)

**MAPIYE**, Obvious (Animal Science)

### **Development of a Livestock Management Database System towards sustainable smallholder farming systems in South Africa**

This study develops a mobile phone-based livestock management database system (LMDS) for improving the performance and sustainability of commercially oriented smallholder cattle producers in South Africa. Key constraints are low ratios of extension workers to farmers, and inefficient communication between these two groups. The strengths and weaknesses of existing innovations are identified and used to improve the design and user-centricity of the LMDS. Results indicate that most farmers have experience of using information and communications technology, and have a positive perception of the usefulness of the LMDS in livestock production. Farmers also seem willing to pay for accessing the innovation.

*Supervisor:* Dr AH Molotsi

*Co-supervisors:* Profs K Dzama, G Makombe

**MARIMA**, Jacqueline Keena (Animal Science)

### **The application of genomics and transcriptomics for the characterisation of the genetic diversity of tick resistance in Angus, Brahman, Nguni and Santa Gertrudis cattle artificially infested with *R. microplus* and *R. decoloratus* ticks**

Cattle resistance to ticks is a complex trait influenced by the interaction of multiple genes with various immune and non-immune functions. This study explores mechanisms of tick resistance by profiling the genetic basis of the host's immune responses at the tick attachment site. To this end, it uses differential gene expression patterns observed between and within breeds in Angus, Brahman, Nguni and Santa Gertrudis cattle artificially infested with *Rhipicephalus microplus* and *R. decoloratus* larvae. Genes SATB2, CCL26, MZB1, B4GALT1 and MMP12 are identified as potentially useful biological markers for the selection of tick-resistant cattle for breeding, and for the development of anti-tick vaccines.

*Supervisor:* Prof K Dzama

*Co-supervisors:* Prof N Jonsson (*external*), Drs MC Marufu (*external*), B Dube (*external*)

**MATSIKIDZE**, Stenford Ngonidzashe (Wine Biotechnology)

### **Plant water stress determination using proximal thermal infrared and multispectral reflectance remote sensing techniques**

It is anticipated that consistent and more severe droughts will affect viticulture as a result of climate change. Remote sensing tools hold promise for accurate, high-throughput water stress detection in vineyards. This study tests the accuracy of both thermal and multispectral reflectance cameras towards this goal. It is found that proximal multispectral technology is mostly unable to accurately determine grapevine water status under controlled or vineyard conditions. Thermal cameras more accurately detect grapevine water stress under various conditions, but are strongly influenced by cultivar and actual stress levels. The results confirm the importance of rigorously validating the sensors that show promise in precision viticulture.

*Supervisor:* Prof MA Vivier

*Co-supervisors:* Drs CA Poblete-Echeverria, P Young

**MBUYANE**, Lethiwe Lynett (Wine Biotechnology)

### **Investigating the lipid requirements of wine-related non-*Saccharomyces* yeasts**

In *Saccharomyces cerevisiae*, being the dominant wine yeast, lipids are necessary for growth and fermentation performance, and affect flavour and aroma production. However, the lipid requirements and metabolism of other yeasts, which also contribute significantly to wine flavour and aroma, have not been studied in any depth. This study shows for the first time that wine-relevant yeast species differ significantly in cellular lipid profiles and lipid metabolism. This affects their overall adaptation to fermenting grape juice. These yeasts would benefit from specific lipid formulations to enhance their survival and contribution to wine properties.

*Supervisor:* Prof B Divol

*Co-supervisor:* Prof FF Bauer

**MUNIAN**, Andre Craig (Animal Science)

### **The identification of biomarkers in the growth prediction of the West Coast Rock Lobster, *Jasus lalandii***

The stock of West Coast rock lobster, *Jasus lalandii*, a fisheries resource for South Africa, is at a critically low level. To sustainably rebuild the stock, the fishery is managed based on conventional stock assessment data from the previous season. Therefore, this study explores timelier growth predictors for the next season. To achieve this, a novel approach to fisheries science is used, taking into account physiological and biochemical aspects for stock assessment. The study results provide government fisheries scientists with important initial information from which to develop growth predictors as well as future research directions.

*Supervisor:* Prof L Auerswald

*Co-supervisor:* Prof LC Hoffman (*external*)

**MUVHALI**, Pfunzo Tonny (Animal Science)

### **The refinement of an artificial insemination protocol in ostriches**

Assisted reproduction and positive human–ostrich interactions may improve fertility and docility. This study establishes the seasonality of male and female ostrich reproductive traits, adapts sperm doses and insemination frequencies to maintain fertility, and demonstrates the hatching of chicks after insemination. A female flock producing eggs without males is established. Ostrich temperament is also improved by habituating day-old chicks to humans. Key male and female traits as well as temperament are found to be repeatable and/or heritable, allowing current-flock and future-generation gains. Selection under an assisted reproduction regime could enhance performance and the bird–human interface, promoting ethical and sustainable ostrich farming.

*Supervisor:* Dr M Bonato

*Co-supervisor:* Prof SWP Cloete



**NEL**, Cornelius Loftus (Animal Science)

**Studies on genetic responses and genomic characterisation in South African and Australian sheep**

This study demonstrates that selection for the composite trait 'Lambs weaned per ewe mated' results in substantial direct genetic gains. Components of the selected trait, namely fertility, twinning and rearing ability, all respond favourably. Lamb survival also benefits from selection, particularly under cold-stress conditions. Genomic analyses comparing common breeds across South Africa and Australia demonstrate close within-breed relatedness, thereby facilitating future cross-country evaluation. Genomic information adds value to the evaluation of live weight, wool and reproduction traits in five institutional resource flocks and five selected commercial flocks participating in sheep recording. Further genomic studies on local sheep are foreseen.

*Supervisor:* Prof SWP Cloete

*Co-supervisors:* Prof K Dzama, Dr AA Swan (*external*)

**NGUBANE**, Nombuso Portia (Conservation Ecology)

**Fungal endophyte assemblages associated with twigs of olives in the Core Cape Subregion, South Africa**

Plants host fungi in all healthy tissues. These fungal endophytes are important for plant health. This study investigates the effect of host species identity and environmental change on endophytes in cultivated and native olive trees in South Africa. Different olive species are found to share numerous endophytes, some of which are beneficial to the plants, while others act as pathogens. Native hosts in protected areas appear to harbour in-tact and diverse endophytes. However, these are reduced in cultivated hosts and where plants grow in degraded landscapes. These declines may have severe consequences for normal ecosystem functioning and olive cultivation.

*Supervisor:* Prof F Roets

*Co-supervisors:* Profs L Dreyer, B Slippers (*external*)

**RETIEF**, Estianne (Plant Pathology)

**Verticillium wilt of tomatoes in South Africa: Biology, quantification and management**

Verticillium wilt of tomato crops is an economically important soilborne disease. In this study, *Verticillium dahliae* is shown to be the only species causing this disease in Limpopo, with all populations displaying a clonal structure. Inoculation studies indicate that as little as one microsclerotium (survival structure) per gram of soil can cause disease. The pathogen could be quantified from soil using a low soil sampling strategy and an optimised quantitative, real-time polymerase chain reaction (PCR) assay. Verticillium wilt is effectively controlled under glasshouse conditions using green manuring or the anaerobic soil disinfestation (ASD) application of sorghum x sudangrass or white buffalo grass.

*Supervisor:* Prof A McLeod

*Co-supervisor:* Dr S Lamprecht (*external*)

**SAUNDERS**, Alta (Forest Science)

**Investigating the photosynthetic and hydraulic trade-off during drought recovery in *Eucalypts***

Stomatal regulation plays a key role in controlling carbon sequestration and water loss. Plant water supply, a major factor in understanding plant-level carbon sequestration, is not only regulated by stomatal conductance, but also limited by a decrease in hydraulic conductance due to embolism formation. The reduction of xylem conductance due to embolism formation cannot be directly regulated by the plant. However, stomatal regulation can help prevent runaway cavitation. Therefore, this study focuses on how *Eucalyptus* trees respond to drought and drought recovery, the role of stomatal regulation in such response, and how to model this interaction.

*Supervisor:* Prof DM Drew

**SMART**, Ricardo Virgill (Wine Biotechnology)

**Vineyard cover crop application: Influence on the soil, leaf and wine fermentation microbiome**

For this study, triticale and Faba beans were planted as cover crops in three vineyards characterised by different soil types. The effect of these cover crops on the soil microbiota is subsequently assessed using different culture-independent methods. The study also evaluates the potential transfer of microbiota from the soil and cover crops to grapevine leaves and grape must. Key fungal and bacterial genera that are either enhanced or suppressed by the different cover crops are highlighted. Overall, the influence of soil type on the cover crops' contribution to the soil microbial communities seems to be surpassed by vineyard location.

*Supervisor:* Prof ME Setati

*Co-supervisors:* Prof FF Bauer, Dr EH Blancquaert

**THERON**, Kasselman Jurie (Conservation Ecology)

**Biodiversity assessments using remote sensing and integrative modelling for improved conservation management**

This study illustrates the use of satellite remote sensing to rapidly monitor species distribution and drivers of change across landscapes over time. Grassland corridors have a lasting positive impact on grasshoppers for up to three years by maintaining high-quality habitat, but are invaded by American bramble. Using deep-learning image fusion, bramble is classified more accurately than with conventional satellite imagery. Bramble is found to hamper biodiversity and reduce functional connectivity across grassland corridors in a timber plantation. It is concluded that grassland corridors maintain their biodiversity in actively managed production landscapes when management incorporates a biodiversity response to disturbance and considers functional connectivity.

*Supervisor:* Prof JS Pryke

*Co-supervisor:* Prof MJ Samways



**THERON**, Simone Norah (Horticultural Science)

**Improving Resilience in Rainfed and Irrigated Agriculture under Future Climate in the Winter Rainfall Region of the Western Cape: Lessons from the 2015-2018 Drought**

Lessons from the 2015–2018 drought can inform adaptation to climate change for crop production. Focusing on Western Cape commercial wheat and apple farmers, this study uses weather and production data along with a survey questionnaire and in-depth interviews with stakeholders to understand drought impacts and responses. From the results, five key lessons are identified, namely that drought is a recurring phenomenon in this region, forecasts are an essential tool for building resilience, drought indices can be a valuable component of seasonal drought prediction, farmers have high autonomous adaptive capacity, and improving the multiple capitals available to farmers can enhance resilience.

*Supervisor:* Prof ERM Archer (*external*)

*Co-supervisor:* Prof S Midgley

**TOWERS**, Pedro Campbell (Viticulture)

**Study of vegetative-reproductive vine balance mapping using moderate-resolution remote sensing information**

Modern viticulture requires consideration of the spatial variability of yield and vine size. Remote sensing (RS) has proved capable of capturing the variability of plant vigour, making it an affordable means to map source size. However, yield is difficult to estimate from RS. This study explores the variables involved and the procedures required to determine the vegetative-reproductive vine balance using RS information. The results confirm that vegetative growth variables and yield can be estimated by RS using machine learning and a comprehensive database that contains multiple sites on a long-term temporal scale.

*Supervisor:* Dr CA Pobleto-Echeverria

*Co-supervisor:* Dr A Strever

**TSHUMA**, Flackson (Agronomy)

**Tillage effects on soil quality and plant productivity in the Swartland region, South Africa**

Continuous and repeated application of synthetic agrochemicals (fertilisers, herbicides, insecticides and fungicides) can lead to soil degradation and development of resistance to herbicides, insecticides and fungicides. The future of sustainable crop production lies in the reduction of synthetic agrochemical applications. This study assesses the effect of reducing the application of synthetic agrochemicals by substituting them with environmentally friendly biochemicals, as well as using infrequent tillage to incorporate soil amendments and for weed control. Data from a long-term experiment (44 years) is evaluated. It is concluded that incorporation of biochemicals and reduced tillage could be beneficial for soil quality and crop productivity.

*Supervisor:* Dr PA Swanepoel

*Co-supervisors:* Profs F Rayns (*external*), JE Bennett (*external*),

Dr J Labuschagne

**VAN SCHALKWYK**, Roeline (Soil Science)

**Evaluation of soil covers to improve and predict their performance for the rehabilitation of coal mines on the Highveld of Mpumalanga, South Africa**

Store-and-release covers (SRCs) are an important mitigation method to protect the environment and groundwater from acid mine drainage at rehabilitated mines on the Mpumalanga Highveld, South Africa. Data sets of well- and poorly constructed covers, and the availability of data for predicting long-term performance of SRCs are limited. Consequently, predictive models such as pedotransfer functions to predict the soil hydraulic properties were developed from soil physical properties. Leaf area index values for good and poor vegetation covers were determined and some improvement was made for the Technical Guide for Store-and-Release Covers.

*Supervisor:* Dr JE Hoffman

*Co-supervisor:* Prof JL van Zyl

**WESSELS**, Nadia (Conservation Ecology)

**Assessing natural open spaces in ecosystem service provision for enhanced urban planning in the Global South**

Urban natural open spaces are overexploited and remain poorly considered in urban planning, particularly in the Global South, where institutional constraints and complex socioeconomic and political priorities prevail. By interviewing communities, local government officials and ecological experts, this study finds that optimising ecosystem services provision in natural open spaces requires an understanding of how land cover change affects these services. The challenges and opportunities for mainstreaming ecosystem services in urban planning must also be determined, along with community and local government needs. Implementing natural open space plans requires a transdisciplinary approach that incorporates alternative ways of knowing, and feedback between different knowledge systems.

*Supervisor:* Prof K Esler

*Co-supervisors:* Drs N Sitas, P O'Farrell (*external*)



# Fakulteit AgriWetenskappe | Faculty of AgriSciences

## ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

### **Magister in die Natuurwetenskappe Master of Science**

Bishop, Robyn (Plant Pathology) (*cum laude*)  
Bosman, Robin Nicole (Wine Biotechnology) (*cum laude*)  
Brown, Mariska (Wine Biotechnology)  
Chuene, Lesiba Tyrone (Wine Biotechnology)  
Collop, Amy (Entomology) (*cum laude*)  
Degenaar, Nadia (Wine Biotechnology) (*cum laude*)  
Dippenaar, Elsje Marthina (Sustainable Agriculture)  
Govender, Varoostha (Wine Biotechnology)  
Jacobs, Vernon Guy (Plant Pathology) (*cum laude*)  
Magwebu, Sinovuyo (Plant Pathology)  
Mcmurtry, Sarah Katherine (Wine Biotechnology) (*cum laude*)  
Petzsch, Irmela (Wine Biotechnology)  
Pillai, Santhuri (Wine Biotechnology) (*cum laude*)  
Steyn, Chanel (Plant Pathology) (*cum laude*)  
Sutton, Steven Alexander (Wine Biotechnology)

### **Magister in die Natuurwetenskappe in Landbou Master of Science in Agriculture**

Biggs, Simone (Animal Science)  
Broeksma, Cornel (Horticultural Science)  
Burger, Jani (Horticultural Science)  
Craven, Dian (Horticultural Science)  
Creevy, Bianca (Animal Science)  
De Jager, Muriel Mignon (Entomology) (*cum laude*)  
Du Preez, Brannigan Jovern (Oenology)  
Du Toit, Nina (Horticultural Science)  
Ehlers, Jandre (Agricultural Economics)  
Geerkens, Willem Hendrik (Animal Science)  
Geldenhuys, Heinrich (Horticultural Science)  
Hanel, Emma Claire (Animal Science)  
Hattingh, Magdaleen (Soil Science) (*cum laude*)  
Hindley, Renoir (Agronomy)  
Malan, Izaack Nichol (Animal Science)  
Mathidza, Bill (Wine Biotechnology)  
Mudau, Fhulufhelo (Animal Science)  
Mushunje, Lovelyn Hellen (Animal Science)  
Nel, David Mathys Cristoffel (Agricultural Economics)  
Oberholzer, Abraham Stephanus (Horticultural Science)  
Phasoana, Thabo Johannes (Plant Pathology)  
Potgieter, Johan Hendrik (Agronomy)  
Ramafoko, Lerato Patricia (Agricultural Economics)  
Senyolo, Thapelo (Aquaculture)  
Shepstone, Craig Alan (Animal Science)  
Spencer, Katharine Anne (Animal Science)  
Stapelberg, Wian (Animal Science)  
Stofberg, Marlie (Horticultural Science)  
Uys, Pieter Hendrik Schalk (Animal Science)  
Van der Merwe, Annemarie (Soil Science)  
Van der Merwe, Johan Herbst (Soil Science)  
Van Lingen, Andrew Frank William (Horticultural Science)  
Volschenk, Michael Eugene (Agricultural Economics)

### **Magister in die Natuurwetenskappe in Bosbou- en Houtwetenskappe Master of Science in Forestry and Wood Sciences**

Chatukuta, Tatenda Sylvester (Wood Product Science)  
Mahadeo, Leeshan (Forest Science)  
Mfuni, Tiza Ignatius (Forest Science) (*cum laude*)  
Nieto Lawrence, Juan Sebastian (Forest Science) (*cum laude*)

### **Magister in die Natuurwetenskappe in Bewaringsekologie Master of Science in Conservation Ecology**

Fourie, Michelle (Conservation Ecology) (*cum laude*)  
Lehman, Tevan William Key (Conservation Ecology) (*cum laude*)  
Muller, Allison Anne (Conservation Ecology)  
Stevens, Llyle (Conservation Ecology) (*cum laude*)  
Van Deventer, Henno Daniël (Conservation Ecology)  
Vermonti, Nicola (Conservation Ecology)

### **Magister in die Natuurwetenskappe in Voedsel- en Voedingsekerheid Master of Science in Food and Nutrition Security**

Bakasa, Clinton (Food and Nutrition Security)  
Barkhuysen, Janine (Food and Nutrition Security) (*cum laude*)  
Barlow, Viné (Food and Nutrition Security) (*cum laude*)  
Handuukeme, Beverly Virginia (Food and Nutrition Security)  
Petersen, Ilse (Food and Nutrition Security)  
Pillay, Kalle Veronica (Food and Nutrition Security)  
Setati, Matlou Bartina (Food and Nutrition Security)  
Smit, Jonese Elsje (Food and Nutrition Security)

### **Magister in die Natuurwetenskappe in Voedselwetenskap Master of Science in Food Science**

Dippenaar, Carla (*cum laude*)  
Oosthuizen, Marco (*cum laude*)  
Ramkisson, Taish (*cum laude*)  
Van Schoor, Helene

### **Nagraadse Diploma in Agronomie Postgraduate Diploma in Agronomy**

Odendal, Willem Dreyer  
Olivier, Chrischen Anthony  
Van Loggerenberg, Johannes Nicolaas Du Toit

### **Baccalaureus in die Natuurwetenskappe in Landbou Bachelor of Science in Agriculture**

Abdel Fattah, Karim Shawky (Plant and Soil Science)  
Arends, Luwayne (Viticulture and Oenology)  
Badenhorst, Monica (Plant and Soil Science)  
Bergh, Willem Johannes Andries (Animal Science with Agronomy)  
Bestbier, Louise (Plant and Soil Science)  
Botha, Johannes Petrus (Plant and Soil Science)  
Boting, Bronwyn Frances (Viticulture and Oenology)  
Breytenbach, Amé (Viticulture and Oenology)  
Cloete, Jan Sebastian (Plant and Soil Science)  
Conradie, Daniël Galvin (Viticulture and Oenology)  
Davel, Nicolaas Christoffel (Plant and Soil Science)  
De Beer, Hendrik Cornelius (Plant and Soil Science)

De Kock, Jana Salome (Viticulture and Oenology)  
Dyosi, Asemahle (Plant and Soil Science)  
Little, Shannon Michelle (Viticulture and Oenology)  
Mabelebele, Mosima Lettecia (Viticulture and Oenology)  
Ockhuis, Jason (Plant and Soil Science)  
Pretorius, Abbey (Viticulture and Oenology)  
Rieth, Stefan Olaf (Agricultural Economics)  
Rossouw, Casper Johannes (Viticulture and Oenology)  
Schlesinger, Subrina (Plant and Soil Science)  
Trollip, Zandelie (Agricultural Economics)  
Wentzel, Lukas Abraham (Plant and Soil Science)

**Baccalaureus in die Natuurwetenskappe in Bosbou in  
Bosbou- en Houtwetenskappe  
Bachelor of Science in Forestry in Forestry and Wood  
Science**

Garnham, Joseph Caleb Hackett  
Jordaan, Michelle  
Khuzwayo, Cebo Sihle  
Kutzer, Karl  
Muller, Jean-Ryno  
Nefdt, Keenan Colin  
Sampson, Tameryn  
Theron, Mikal  
Van Wyk, Shaundrè Ethan

**Baccalaureus in die Natuurwetenskappe in  
Voedselwetenskap  
Bachelor of Science in Food Science**

Boutlwanye, Nametsegang Retshegofaditswe  
Munford, Julia Christine  
Olivier, Francine  
Zehrt, Eduard

**Baccalaureus in Landbou  
Bachelor of Agriculture**

Africa, Chairó Daniel  
Bosman, Leandri  
Bruwer, Andre Stephanus  
Bruwer, Ludwig Burger  
Calitz, Joshua John  
Connellan, Mitchell Brian  
Conradie, Roux  
Cronje, Michael Otto  
De Jager, Salomon Hercules Francois (*cum laude*)  
De Wet, Kristiaan Johannes  
Erasmus, Abraham Hermanus  
Grobler, Pieter Heiberg  
Hanekom, Van Eeden  
Human, Jurie-Wynand  
Kitshoff, Matthys Jacobus Bernardus  
Kriel, Christiaan Lodewyk  
Lambrecht, Johannes Frederik  
Le Roux, Hermanus Lambertus  
Le Roux, Stephan  
Leroux, Ian Alasdair  
Lourens, Dirk Casimer  
Lyons, Leon Christian  
Marais, Déhan Willem Gabriël  
Marais, Henlo  
Marais, Jacobus Johannes  
Meyer, Hendrik Rossouw  
Morrison, Cleo Viola  
Muller, Cornelius Johannes  
Mynhardt, Troy Daniel  
Oliver, Tashreeq  
Phillips, Jacoba Magdalena Aletta  
Price, David Guy  
Slabber, Marcel

Solms, Johnnie  
Van den Heever, Mardine  
Van der Vyver, Johannes Jacobus  
Van Deventer, Anje  
Van Dyk, Carlo  
Van Eck, Marlise  
Van Niekerk, Johannes Dreyer  
Van Schalkwyk, Daniel Johannes  
Van Zyl, Carel Petrus  
Vorster, Ben Johann  
Walters, Samuel Anthonie  
Wilken, Andre Anthony  
Williams, Elrico Nico





**Fakulteit** **Faculty**

Regsgeleerdheid

Law

**5 April 2022 - 09:00**

**5 April 2022 - 09:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

*Staan asseblief*

1. Akademiese prosesie kom die saal binne.
2. Speel van die Nasionale Lied.
3. Formele konstituering deur die Kanselier.
4. Verwelkoming deur die Kanselier.
5. Voorstelling van kandidate wat kwalifikasies ontvang deur die dekaan van die fakulteit en toekenning van kwalifikasies deur die Kanselier.
6. Sluiting deur die Kanselier.
7. Akademiese prosesie verlaat die verhoog.

## Programme

*Please stand*

*Please stand*

*Please sit*

*Please stand*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Chancellor.
4. Welcome by the Chancellor.
5. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Chancellor.
6. Closing by the Chancellor.
7. The academic procession leaves the stage.

### DOKTOR IN DIE REGSGELEERDHEID DOCTOR OF LAWS

**DE VILLIERS**, Cecile (Mercantile Law)

#### **The impact of the legislative regulation of individual educator performance on the delivery of quality basic education**

The lack of delivery of basic education of a consistently high quality in South Africa denies learners self-actualisation, precludes economic welfare improvements and prevents transformation of the South African society. Qualified, competent and professional educators are central to the delivery of quality basic education. One contributing factor to the poor state of basic education is the fragmented and inappropriate legislative regulation of educator performance. This study investigates experiences relating to educator misconduct and incapacity within the current legislative framework. Deficiencies in the regulatory system are identified and specific proposals made for a range of legislative amendments.

*Supervisor:* Prof CJ Garbers

**MAHOMEDY**, Sameera (Public Law)

#### **Investigating the role of participation in the upgrading of informal settlements: Identifying challenges and opportunities**

One of the major remnants of colonialism and apartheid is the large number of informal settlements that were established as a result of a combination of factors, including various race-based planning legislation. Government has shifted its attention from conventional housing programmes to participatory in-situ upgrades of existing settlements. This study investigates the role that participation plays in upgrading informal settlements, and attempts to address the challenges identified, while also highlighting opportunities to strengthen participatory upgrades by using a comparative analysis with Brazil. Ultimately, the study provides a comprehensive legal framework for participatory processes in upgrading projects.

*Supervisor:* Prof ZT Boggenpoel

**MWESIGWA**, Peter (Public Law)

#### **Victim participation at international courts and tribunals: A Ugandan perspective**

In common law-influenced jurisdictions such as Uganda, the victim of crime is normally not a formal party to the criminal process. The situation is different at the International Criminal Court (ICC). Mirroring the ICC Statute, Uganda's International Crimes Division (ICD) ensures that victim participatory rights are recognised as an essential component of criminal justice proceedings. Employing legal comparative, socio-legal and legal-empirical methods, this study considers the relative costs and benefits of victim participation in a culturally complex legal environment such as Uganda. Certain changes to the functioning of the ICD are also proposed.

*Supervisor:* Prof G Kemp



# Fakulteit Regsgeleerdheid | Law Faculty

## ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

### Magister in die Regsgeleerdheid

#### Master of Laws

Abala, Lydiah Grace  
Amukwa, Aune Nambashu Kandali  
Andrews, Anthony Martin  
Badenhorst, Helene  
Basson, Gideon Burnett (*cum laude*)  
Berry, Jan Paul  
Booyens, Marietjie  
Botha, Ferdinand Marthinus (*cum laude*)  
Cloete, Jo-Anne  
Cloete, Mariska Antoinette  
Coetzee, Anneri  
Day, Jamie Leigh (*cum laude*)  
Du Preez, Elmi  
Ferreira, Soanne  
Frolick, Bradley Timothy (*cum laude*)  
Garises, Iyishi Kay  
Hakaaje, Slevencia Grace Luzeen  
Hollands, Rachel Ashleigh (*cum laude*)  
Janes, Marcelline Antronique Miceala  
La Grange, Jaco  
Lebelo, Lesiba Reuben  
Leonard, Carmia  
Lephoto, Rakweleta  
Mvemve, Tsholofelo Charmaine  
Mvubu, Sikhokele  
Mzozoyana, Lwazi Don  
Nangolo, Ono-Robby Alfredo  
Nathane, Moleboheng Muriel  
Pienaar, Kyle  
Roode, Nikita  
Smith, Daniéle-B  
Swart, Gerbagch Jacobus  
Truter, Anelmari  
Van der Spuy, Janie Inez (*cum laude*)  
Van Vuren, Taydren Sharon  
Van Wyk, John Leonard  
Venter, Esna  
Weideman, Andrea Joy  
Wessels, Lara

### Baccalaureus in die Regsgeleerdheid

#### Bachelor of Laws

Azor, Savannah Ariel  
Bakker, Celine  
Berry, Aerin Jade  
Bester, Carla  
Boddenberg, Mia Gerda  
Boonzaaier, Robynne Laronicia  
Borman, Nastassia Clio  
Botha, Anya-Larissa  
Botha, Sabina Yasmin  
Bothma, Mariné  
Brand, Simon Brink  
Breytenbach, Anais  
Buchanan, James Vincent  
Bull, Samantha  
Burger, Jacobus Stephanus Saul  
Buthelezi, Nozibusiso

Cloete, Anastacia Megan  
Coetzee, Amorei  
Coetzee, Bruce  
Compion, Christian Johan  
Da Costa, Joshua (*cum laude*)  
Davids, Kirstin Rebecca  
De Bruyn, Abri Jeremy  
De Sousa, Carla  
Dooge, Dane  
Duggan, Alexandra Jane  
Fairweather, Jade Wanda  
Feher, Micha  
Garland, Judy  
Gelant, Andrea Jade  
Groenewald, Tertius Adriaan  
Hattingh, Sionné  
Hendricks, Zhawne Lynn  
Henke, Zaskia  
Hislop, Estelle Hailey (*cum laude*)  
Ismail Mukaddam, Mumtaaz  
Jacobs, Charmoné  
Jacobs, Jamie Lee  
Kajee, Yusuf Ebrahim  
Khosa, Vutomi  
Knowles, Cameron Stuart  
Köstens, Gilda  
Kotzee, Aerin Caris  
Kriel, Megan Mari  
Kruger, Angelique  
Kruger, Lara  
Kuttschreuter, Rebecca Victoria  
Lakin, Carly  
Lee, Kerstin Heather  
Louw, Jane Adelheid  
Lutuli, Hlonelwa  
Maharaj, Tajme  
Manisunker, Shekar  
Mapani, Rumbidzai Laura  
Maritz, Annerita  
Marthinus, Caleb Joseph  
Mashiki, Gabriella Munesu  
Mason-Gordon, Samantha Alexandra  
Mc Loughlin, Caitlin Ancilla  
Meloy, Rachel Sharé  
Meyer, Enrico Richard  
Michael, Ewin  
Molla, Eman  
Moshitwa, Mbeki Donald  
Müller, Floris Petrus Johannes  
Munya Buranga, Tamara  
Nell, Christine  
Niehaus, Anel  
Nwagbara, Ricky Ezenwa  
Oates, Celine Tyla  
Oliver, Laurie Rae (*cum laude*)  
Oosthuizen, Jana Embe  
Page, Tayla Katherine  
Park, Soobin  
Passerini, Matteo Guglielmo  
Philander, Jordan Jade  
Pienaar, Frances Juanette



Potgieter, Johannes Marius  
Pretorius, Lizanne  
Ramchunder, Tiyana (*cum laude*)  
Reyneke, Tori Leigh  
Roos, Megan  
Roux, Marté Suzanne  
Ruponga, Samantha Kudzai  
Ruschenbaum, Heidi-Lee  
Schoombie, Aidin  
Senior, Christopher Rawson  
Seyisi, Thembalethu  
Shale, Teboho  
Smet, Maxine Marleen John  
Stanley, Caydon Jett  
Steyn, Megan  
Stroud, Jean-Andre  
Swanepoel, Sebastiaan  
Thysse, Annélichia  
Tison, Margaux  
Turnbull, Regan Mark  
Turner, Kelly  
Uithaler, Deliandri Wilmi-Ann  
Uys, Hugo (*cum laude*)  
Van de Vyver, Deandi Aletta  
Van der Watt, Danielle Elana  
Van Eyssen, Tasha Sandré  
Van Heerden, Mabette  
Van Reenen, Dale Leighthan  
Van Reenen, Rebecca Emma  
Van Wyk, Carli Andrea  
Viljoen, Wian  
Vlotman, Chrisley Joy  
Watson, Emma Rebeka (*cum laude*)  
Webster, Brittany Morgan  
Williams, Alexander John

**Nagraadse Diploma in Belastingreg  
Postgraduate Diploma in Tax Law**

Bester, Marius  
Burger, Ilse Juliana  
De Bruin, Andy William  
Feni, Tandokazi  
Fry, Winston Ruchen  
Gantolo, Thembinkosi Moses  
Louw, Nicholas Andries  
Masina, Sukoluhle  
Mbiyo, Xhoba Phumlani  
Naicker, Krigan Siveshen  
Neethling, Hendrik Johannes  
Singh, Farryl Brian  
Smith, Jeanice Courtney Marlene  
Thobela-Mkhulisi, Jabu Yvonne  
Viviers, Jeanne-Mari





## **Fakulteit**

Geneeskunde en  
Gesondheidswetenschappen

**5 April 2022 - 13:00**

## **Faculty**

Medicine and  
Health Sciences

**5 April 2022 - 13:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

*Staan asseblief*

1. Akademiese prosesie kom die saal binne.
2. Speel van die Nasionale Lied.
3. Formele konstituering deur die Kanselier.
4. Verwelkoming deur die Kanselier.
5. Voorstelling van die eredoktorandus en toekenning van die eregraad deur die Kanselier.
6. Voorstelling van kandidate wat kwalifikasies ontvang deur die dekaan van die fakulteit en toekenning van kwalifikasies deur die Kanselier.
7. Sluiting deur die Kanselier.
8. Akademiese prosesie verlaat die verhoog.

## Programme

*Please stand*

*Please stand*

*Please sit*

*Please stand*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Chancellor.
4. Welcome by the Chancellor.
5. Presentation of the candidate for the honorary doctorate and conferment of the degree by the Chancellor.
6. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Chancellor.
7. Closing by the Chancellor.
8. The academic procession leaves the stage.

## Eregraad | Honorary Doctorate

### FAKULTEIT GENEESKUNDE EN GESONDHEIDSWETENSAPPE FACULTY OF MEDICINE AND HEALTH SCIENCES

Die graad Doktor in die Natuurwetenskappe (DSc), *honoris causa*, aan  
The degree Doctor of Science (DSc), *honoris causa*, to

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#### dr Patrice Matchaba

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*sy voortreflike bydraes tot die farmakologie en kliniese wetenskap, sy leiersrol om ongelykhede in gesondheidsorg en navorsingsvermoë wêreldwyd reg te stel, en die toepassing van sy kennis om mense oor die wêreld heen beter mediese behandeling en hoër lewensgehalte te bied.*

Dr Patrice Matchaba is die voorsitter van die Novartis-stigting in die Verenigde State, 'n organisasie wat daarna streef om die gesondheid van lae-inkomstebevolkings deur verskeie innoverende programme te verbeter.

Hy is in 2000 as mediese direkteur en wetenskapshoof by Novartis in Suid-Afrika aangestel, en het twee jaar later na dié farmaseutiese korporasie se kantoor in Amerika verskuif. Sedertdien het hy naam gemaak in die bedryf, en in verskeie leiersrolle by Novartis uitgeblink. Hy het die suksesvolle ontwikkeling, registrasie en bekendstelling van 'n nuwe, innoverende hartversakingsmiddel (Entresto) gelei en die opening van nuwe middelveiligheid- en risiko-opsporingssentrums in Indië, Argentinië, Ierland en China bestuur.

As 'n passievolle kampvegter vir korporatiewe maatskaplike verantwoordelikheid, is Matchaba ook aan die voorpunt van Novartis se inisiatiewe om ongelykheid in gesondheidsorg wêreldwyd reg te stel. Nuwe malariamedisyne is onder sy leiding ontwikkel, en hy het Novartis se Afrikasekelselsiekteprogram in Afrika suid van die Sahara aangevoer. Daarbenewens het hy 'n nuwe Novartis-organisasie vir Afrika suid van die Sahara bekend gestel wat 47 lande insluit en beoog om toegang tot medisyne te verhoog en gesondheidstelsels in Afrika te versterk.

Sy sterk steun vir die Universiteit Stellenbosch het boonop al tot beduidende finansieringsbydraes tot die Fakulteit Geneeskunde en Gesondheidswetenskappe se opleiding- en navorsingsinisiatiewe gelei.

*his outstanding contributions to pharmacology and clinical science, his leading role in addressing disparities in health care and research capacity globally, and applying his knowledge to improve medical treatment and quality of life for people worldwide.*

Dr Patrice Matchaba is the president of the Novartis Foundation in the United States, an organisation that seeks to improve the health of low-income populations through various innovative programmes.

He was appointed medical director and chief scientific officer at Novartis in South Africa in 2000 and transferred to the pharmaceutical corporation's offices in the States two years later. Since then, he has made his mark in the industry, excelling in various leadership roles at Novartis. He led the successful development, registration and launch of a new, breakthrough heart failure drug (Entresto) and managed the opening of new pharmacovigilance and safety signal detection centres in India, Argentina, Ireland and China.

A passionate advocate for corporate social responsibility, Matchaba is also at the forefront of Novartis's initiatives to address inequities in health care across the globe. He supervised the development of new antimalaria medicines and initiated the Novartis Africa Sickle Cell Disease Programme in Sub-Saharan Africa. In addition, he launched a new Novartis Africa Sub-Saharan organisation that incorporates 47 countries with the aim of increasing access to medicines and strengthening health systems in Africa.

In addition, his strong support for Stellenbosch University has resulted in significant funding contributions to the Faculty of Medicine and Health Sciences to sustain training and research initiatives.



# Fakulteit Geneeskunde en Gesondheidswetenskappe Faculty of Medicine and Health Sciences

## DOCTORAL QUALIFICATIONS | DOKTORALE KWALIFIKASIES

### DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY

**CHIBAWARA**, Trust (Epidemiology)

#### **Model-Based inference on the impact of early access to antiretroviral therapy to all on HIV incidence Among adolescent girls and young women in Eswatini**

The introduction of antiretroviral treatment (ART) has enabled people living with HIV to have a favourable prognosis because of suppressed viral load and has contributed to a global decline in HIV incidence over the past decade. While this achievement is important, the role of widespread use of antiretroviral drugs in an HIV epidemic among adolescent girls and young women is still unknown. This study combined multiple disciplines which include, mathematical-modelling, evidence-synthesis, biostatistics, data-science, and public-health measurements to model the impact of ART on the HIV epidemic. The findings support the implementation of expanded access to ART in populations with a high prevalence of HIV.

*Supervisor:* Prof PS Nyasulu  
*Co-supervisor:* Prof D Kajungu

**EBRAHIM**, Zarina (Nutritional Sciences)

#### **The effect of -glucan prebiotic fibre (oats) on the gut microbiome of chronic kidney disease patients (Stage IV and V) and impact on kidney function**

Increasing evidence suggests that gut dysbiosis is involved in chronic kidney disease (CKD) progression through various mechanisms and that modulating the gut microbiome may improve outcomes. This study investigated the effect of a  $\beta$ -glucan prebiotic supplement on kidney outcomes, uraemic toxins and the gut microbiome in predialysis CKD participants. The prebiotic did not affect kidney function, while it significantly reduced uraemic toxins and improved the gut microbiome profile.

*Supervisor:* Prof R Blaauw  
*Co-supervisor:* Prof MR Moosa

**GOOSEN**, Charlene (Nutritional Sciences)

#### **The effect of oral iron supplementation on the gut microbiome in children living with HIV**

In antiretroviral-treated HIV, a chronic disease associated with persistent inflammation, the opposing effects of iron deficiency and inflammation on iron absorption and iron interventions are unclear. Both HIV and oral iron interventions may alter gut microbiota composition. This study investigated nutritional and inflammatory determinants of anaemia, including iron absorption, in the context of perinatally acquired HIV, to ultimately establish the safety of oral iron supplementation in HIV-positive children from a gut microbial perspective. It was found that oral iron supplementation can significantly improve iron status without increasing pathogenic gut microbial taxa in iron-depleted school-age children with virally suppressed HIV.

*Supervisor:* Prof R Blaauw  
*Co-supervisor:* Prof MB Zimmermann (*external*)

**KROON**, Elouise Elizabeth (Human Genetics)

#### **Neutrophils as effector cells in resistance to infection by *Mycobacterium tuberculosis* in HIV-infected persons**

This study examined the mechanisms of immune protection in individuals who are HIV infected, are highly exposed to *Mycobacterium tuberculosis*, the causative organism of tuberculosis (TB), and never develop active disease, the so-called resister phenotype. The focus was on determining whether neutrophils play an important role in this phenotype. This knowledge will ultimately improve our understanding of how certain people's immune systems are able to protect against TB and potentially aid in the development of prophylactic treatments and vaccines against TB. This work is of particular relevance to South Africa, which has epidemics of both HIV and TB.

*Supervisor:* Prof E Hoal  
*Co-supervisors:* Profs M Moller, E Schurr, R Wilkinson, G Tromp, A Coussens

**LEUKES**, Vinzeigh Nicholas (Molecular Biology)

#### **Effect of pharmacological modulation of Myeloid Derived Suppressor Cell function on immune reactivity against *Mycobacterium tuberculosis***

This study focused on adjunctive host-directed therapies to modulate host immunity to increase anti-tuberculosis treatment efficacy. The work specifically aimed to counteract the suppressive effects of myeloid-derived suppressor cells (MDSC), shown to be detrimental to T-cell-specific anti-tuberculosis immunity. Cellular co-culture, flow cytometry and multiplex technology were employed to assess two investigational host-directed therapies, namely all-trans retinoic acid (ATRA) and sildenafil. Both investigational therapies were unable to restore MDSC-mediated suppression of T-cell activation, proliferation and cytokine production. In addition, a standardised protocol was developed for the isolation and verification of MDSC from tuberculosis patients' bronchoalveolar lavage fluid and peripheral blood.

*Supervisor:* Prof N du Plessis  
*Co-supervisors:* Profs G Walzl, A Dorhoi (*external*)

**MANYELO**, Masilo Charles (Molecular Biology)

#### **Evaluation of host inflammatory and transcriptomic biomarker signatures as tools for the diagnosis of tuberculous meningitis**

Tuberculous meningitis, the most severe form of tuberculosis, has high morbidity and mortality in children. This is mainly because of our inability to diagnose the disease early due to limitations in existing tools. This study evaluated new blood and cerebrospinal fluid biomarker-based approaches as tools for the early diagnosis of the disease. It identified novel protein biomarkers that are detectable in cerebrospinal fluid and blood, and novel combinations between genes, which showed strong potential as diagnostic candidates.

*Supervisor:* Prof N Chegou  
*Co-supervisors:* Profs G Walzl, R Solomons

**MATHIAS**, Victor (Nursing Science)

**Development and validation of healthcare standards and criteria that contribute to the care of residents in homes for the elderly in Tanzania**

This study successfully developed and validated healthcare standards and the associated criteria that may contribute to quality care for residents in homes for the elderly in Tanzania. Based on the evidence obtained through this study, government is urged to respond to the plight of the elderly and urgently introduce the validated standards and associated criteria that may give guidance to the provision of safe, quality care and address residents' needs, thereby improving care to residents.

*Supervisor:* Prof EL Stellenberg

*Co-supervisor:* Dr M van der Heever

**MEIRING**, Christina (Molecular Biology)

**Investigating genome variation within a South African wild dog (*Lycaon pictus*) population: towards understanding their susceptibility to *Mycobacterium bovis* infection**

This study characterised the molecular epidemiology of *Mycobacterium bovis* infection, which causes tuberculosis in South African wild dogs, to determine whether mycobacterial shedding occurs in this species and assessed the level of genomic diversity in the Kruger National Park wild dog population. The findings contribute crucial knowledge on the transmission dynamics and pathogenesis of *M. bovis* in African wild dogs, but also elucidate genome-wide variation in 71 individuals, which is the largest group of wild dogs to have whole-genome sequencing performed. This study provides an important component that supports future conservation strategies.

*Supervisor:* Prof M Miller

*Co-supervisor:* Prof M Moller

**MHLANGA**, Laurette (Epidemiology)

**Optimisation And Benchmarking Of Analytical Approaches To Estimation Of Population Level HIV Incidence From Survey Data**

This study investigated stable approaches for applying two HIV incidence estimation methods to age/time-structured population survey datasets, namely HIV status and, optionally, recent infection status. To evaluate the methods, a sophisticated simulation platform was created to simulate HIV epidemics and survey datasets that are structured like real population survey data, with the underlying epidemiological rates explicitly known. The study found that it is easy to obtain estimates with practically negligible bias, but sample sizes/sampling density requirements are always considerable. Observations were made on survey design and the inherent challenges faced by attempts to estimate HIV incidence using surveys of reasonable size.

*Supervisor:* Prof A Welte

*Co-supervisor:* Dr E Grebe

**MOHAMOUD**, Gulnaz (Family Medicine)

**An evaluation of the quality of service delivery in private primary care facilities in Nairobi, Kenya**

This study evaluates the quality of service delivery in a group of private-sector primary care clinics associated with a tertiary hospital in Nairobi, Kenya. Five studies collected data from patients and general practitioners in the key domains of high-quality primary care. First contact accessibility was found to be good, coordination and continuity of care were average, while comprehensiveness and person-centredness were poor. The findings will assist these clinics to improve service delivery, upskill general practitioners and guide the development of family medicine. The study also adapts the primary care assessment tool for the Kenyan context and showcases methods for evaluating primary care service delivery.

*Supervisor:* Prof RJ Mash

**MOSHA**, Neema Ramadhani (Epidemiology)

**The impact of missing data on estimating HIV/AIDS prevalence and incidence in demographic sentinel survey studies**

The aim of this study was to evaluate the impact of missing data on estimating HIV/AIDS prevalence in demographic sentinel surveillance studies. The research consisted of four phases. It showed that despite the availability of methods to adjust for missing data, many surveys still ignore the missingness, and where missingness has been adjusted for, the reporting was below guideline standards. It highlights the need for clear information and increased awareness to allow researchers to make informed decisions on which method to apply and in which situation it works best for the estimates to be more reliable and representative.

*Supervisor:* Prof R Machekeano

*Co-supervisors:* Profs J Todd (*external*), T Young

**MÜLLER-NEDEBOCK**, Amica (Human Genetics)

**Investigating mitochondrial DNA sequence variation and copy number in individuals of African ancestry living with Parkinson's disease**

This study focused on the role of mitochondrial DNA (mtDNA) in the aetiology of Parkinson's disease in individuals of African ancestry. After mitochondrial genome sequencing, it was found that specific variants that are so-called out of place were observed more commonly in Parkinson's disease cases than controls. Furthermore, it was found that the mitochondrial copy number was significantly increased in cases compared to controls. This study makes a considerable contribution to the field and points to nuclear DNA variation being a primary genetic cause resulting in somatic mtDNA changes.

*Supervisor:* Prof S Bardien

*Co-supervisor:* Prof F van der Westhuizen (*external*)



**NAIDOO**, Shalena (Medical Virology)

#### **A Longitudinal Perspective on the Impact of Immune Status on the HIV-1 Latent Reservoir and Neurocognitive Outcomes in Virologically Suppressed Children**

This study evaluated the relationship between immune status, the HIV-1 latent reservoir and neurocognitive outcomes in children on continuous suppressive therapy at eight years. HIV-1-infected children showed significantly higher levels of biomarkers associated with generalised chronic inflammation, particularly those associated with innate myeloid cell activation. Of these, IL-18 was shown to correlate significantly with reservoir measures at both baseline and eight years. It was also strongly associated with markers of intestinal barrier damage. The strongest predictors of aberrant immunity were time to initial therapy initiation and to viral suppression. Impaired neurocognitive outcomes could also be predicted by immunological parameters.

*Supervisor:* Prof RH Glashoff

*Co-supervisor:* Dr C de Beer

**OBASA**, Zimvo (Molecular Biology)

#### ***Mycobacterium tuberculosis* persists at the host-pathogen interface**

This study developed and applied tools to study persister *Mycobacterium tuberculosis*, a viable, but non-replicating, population formed under host-associated stress conditions. A fluorescent reporter strain of *M. tuberculosis* was exploited to track and sort host macrophages containing differentially replicating bacteria, followed by RNA-seq to demonstrate distinct phenotypes of these macrophages. Further, a series of experiments established and validated a mouse model for studying *M. tuberculosis* persister formation, fate and physiology. This model will support future work to interrogate the effect of drug treatment and/or vaccination on persister populations; this may have important implications for tuberculosis prevention and treatment.

*Supervisor:* Prof S Sampson

*Co-supervisors:* Drs L Smit, J Mouton

**OKUGBENI**, Naomi (Human Genetics)

#### **Tracking Autophagy progression in *Mycobacterium tuberculosis*-infected macrophages**

Autophagy is a cellular process that can degrade intracellular pathogens, including *Mycobacterium tuberculosis* (*Mtb*). While this process has been extensively studied, its temporal dynamics in *Mtb* infection has not been elucidated. In this study, autophagy activity was tracked in *Mtb*-infected cultured macrophages over 72 hours. As a result, a more accurate method of measuring autophagy activity was developed. Furthermore, using a combination of confocal microscopy and CLEM, it was determined that phagosomes engulfing *Mtb* likely originates from mitochondrial material and that cytosolic translocation of *Mtb* happens at around 48 hours of infection. These findings provide novel insights into autophagy progression during *Mtb* infection.

*Supervisor:* Prof C Kinnear

*Co-supervisor:* Prof B Loos

**PARBHOO**, Trisha (Molecular Biology)

#### **Characterising *Mycobacterium tuberculosis* persister populations**

This study focused on persister *Mycobacterium tuberculosis*, a viable, but non-replicating, bacterial sub-population formed under stress conditions experienced in the host. Flow cytometry was exploited in combination with fluorescent markers to monitor population-wide, single-cell replication dynamics to characterise *M. tuberculosis* persisters formed during macrophage infection. A key output was the development of a culture-free, flow cytometry-based approach for rapid, accurate enumeration of *M. tuberculosis*, potentially applicable in research and clinical settings. The study further provides new insights into factors influencing *M. tuberculosis* persister formation, which could ultimately aid the design of antibiotics that effectively target persisters, and thereby shorten treatment.

*Supervisor:* Prof S Sampson

*Co-supervisor:* Dr J Mouton

**PHAHLADIRA**, Lebogang (Psychiatry)

#### **The clinical course and outcomes of first-episode psychosis: A study of the acute, medium- and long-term outcomes in a cohort rigorously treated in the early phase of illness**

The clinical course of schizophrenia is characterised by recurrent symptoms of psychosis and enduring functional deficits. This series of studies examined the clinical course in individuals with a first episode of schizophrenia who received standardised treatment over two years. The main findings were that assured treatment delivery by means of a long-acting injectable antipsychotic was associated with favourable outcome in terms of symptom remission, functional remission and favourable self-rated quality of life. However, relatively few patients achieved all three components of the recovery criteria simultaneously, and insight impairment persisted despite the generally favourable treatment response.

*Supervisor:* Prof R Emsley

**ROBYN**, Aneurin (Physiotherapy)

#### **Return to play in elite rugby players after severe knee injuries – Addressing the knowledge gaps**

This research entailed a descriptive cross-sectional study to compare the physical profiles of elite rugby union players and a prospective cohort study to compare the injured participants' profiles at return to play. The findings showed good psychological readiness after a severe knee injury, but injured players' running speed and decision-making time were slower upon return to play compared to controls. A key recommendation of the study is multidisciplinary monitoring for at least six months after a severe knee injury. Artificial intelligence and algorithms may assist in informing complex return-to-play decisions.

*Supervisor:* Prof Q Louw

*Co-supervisor:* Prof J Baumeister (*external*)



**RAHANYA**, Vurayai (Medical Virology)

**Analysis of HIV-1 diversity and inflammatory markers in different cell compartments in HIV-associated neurocognitive disorders (HAND)**

The aim of the study was to identify viral and immunologic markers for an improved diagnosis of HIV-associated neurocognitive disorders (HAND), particularly among patients infected with HIV-1 subtype C. Key findings included proviral DNA as a predictor of neurocognitive impairment; mutations Lysine at codon 24 (24K), Arginine at codon 29 (29R) in Tat protein and Tyrosine at position 45 (45Y) in the Vpr protein as signatures for cognitive impairment in HIV infection; and novel linkages among RANTES, IP-10, cognitive status and viral load. The identified markers are practical tools for screening and monitoring HAND.

*Supervisor:* Prof S Engelbrecht

*Co-supervisors:* Prof RH Glashoff, Dr GB Jacobs (deceased)

**SINGH**, Shenuka (Clinical and Research Ethics)

**Developing online educational modules on the ethical, legal and social issues related to biobanking: A resource for clinicians, researchers and research ethics committees in South Africa**

Biobanking is located at the intersection of science, bioethics, the law and public health. For her second PhD, the candidate reviewed current globally available online training courses on the ethical, legal and social issues (ELSI) of biobanking and found this lacking in relevance and affordability for LMICs. She explored stakeholder perspectives on the ELSI of biobanking practice in South Africa and on educational needs via participatory action research. She then developed a short online course on the ELSI of biobanking. The candidate published 3 of her research chapters in peer-reviewed international journals. The remaining 4 chapters are prepared for publication.

*Supervisor:* Prof K Moodley

*Co-supervisor:* Prof J Cadigan

**SKINSTAD**, Deborah Anne (Sport Science)

**Transitioning out of the professional player pathway: A grounded theory on the process in South African men's tennis**

A constructivist grounded theory methodology was utilised as a process and strategy to generate a theory on transitions within and out of the professional player development pathway. Players, coaches, parents and administrators were interviewed to ensure maximum variation and theoretical saturation. The emergent theory is underpinned by eight categories and four sub-categories. A lack of context about individual experiences during the junior to senior transition (figuratively) confines the South African player to a linear, reductionist and prescriptive approach to development, compounded by the current long-term player development model. The developed theory emphasises the person and amplifies the player voice.

*Supervisor:* Prof HW Grobbelaar

*Co-supervisor:* Prof WA Babchuk

**SPARKS**, Anél (Human Genetics)

**De novo assembly of admixed South African genomes and its application to genetic susceptibility to tuberculosis**

Genetic susceptibility to complex diseases such as tuberculosis and rare inborn errors of immunity, such as Mendelian susceptibility to mycobacterial disease (MSMD), has been investigated in South Africans. The human reference genome, a public resource that consists of sequencing data from multiple European individuals, had to be used, but this resource is not sufficient for all groups. In this study, a population-specific reference genome was created with the same coordinate system as the gold standard human reference, while using minimal resources. This new reference outperformed the gold standard reference by successfully identifying a candidate variant in a South African individual with MSMD.

*Supervisor:* Prof M Möller

*Co-supervisors:* Dr B Glanzmann, Profs C Kinnear, G Tromp, G van der Spuy

**VAN DER WALT**, Janke (Occupational Therapy)

**The development of Hopscotch: an early intervention programme to improve motor skills and academic performance of grade R children in the West Coast of South Africa.**

Motor skills are the underlying abilities needed to perform skilled and coordinated actions such as climbing, running and drawing. Although motor skill impairment is associated with poor school performance, many children lack access to therapeutic services to address developmental delays. Based on a sequential mixed-methods design and complex intervention development methods, this study formulated a hopscotch motor skill intervention programme for Grade R children in the West Coast of South Africa. This is a low-resourced area with a high prevalence of motor skill impairment. A planned exploratory randomised controlled trial will determine the effectiveness of the hopscotch programme in future.

*Supervisor:* Prof N Plastow

*Co-supervisor:* Prof M Unger

**VAN EEDEN**, Gerald Eduard (Human Genetics)

**Expanding existing tools to aid in the epidemiological study of populations with complex ancestry**

There is a substantial difference in the representation of individuals of non-European descent and individuals of European descent in genome-wide association study (GWAS) catalogues. This study addressed this imbalance by supplying a comprehensive framework for the inference and use of recombination maps when studying populations with complex ancestry and touched on important facets of GWAS in the southern African context. This work is of particular relevance to South Africa, as many genetically diverse populations are present in the country.

*Supervisor:* Prof M Möller

*Co-supervisors:* Profs G Tromp, G van der Spuy, Dr C Uren



# Fakulteit Geneeskunde en Gesondheidswetenskappe Faculty of Medicine and Health Sciences

## ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

### Magister in die Natuurwetenskappe Master of Science

Anderson, Sean Glen (Pharmacology) (*cum laude*)  
Berehan, Yebelay (Biostatistics)  
Boonzaier, Willem Petrus Engelbrecht (Medical Physics)  
Brown, Nicole Karen (Human Genetics) (*cum laude*)  
Chetty, Devina (Human Genetics) (*cum laude*)  
Chifamba, Leah Vimbainashe (Human Genetics)  
Chimbunde, Emmanuel (Biostatistics)  
Cook, Emma Nancy (Molecular Biology) (*cum laude*)  
Daniels, Luke-John (Anatomy)  
De Villiers, Abigail Kate (Epidemiology) (*cum laude*)  
Hofmeyr, Jennifer (Molecular Biology)  
Hunde, Belachew Melese (Biostatistics)  
Jangano, Charmaine Tariro (Molecular Biology) (*cum laude*)  
Janke, Camilla (Reproductive Biology) (*cum laude*)  
Jansen Van Rensburg, Zune (Human Genetics) (*cum laude*)  
Kgokane, Boipelo (Medical Physiology) (*cum laude*)  
Kiprono, Hillary Kibet (Biostatistics) (*cum laude*)  
Madhombiro, Munyaradzi (Clinical Epidemiology)  
Maila, Tumelo (Molecular Biology) (*cum laude*)  
Mamo Bazezew, Meseret (Biostatistics)  
Mc Allister, Marli (Clinical Epidemiology) (*cum laude*)  
McCaffrey, Caitlin (Medical Physiology) (*cum laude*)  
Mulenga, Maurice (Cytopathology)  
Mwila, Prince Kasongo (Clinical Epidemiology)  
Ndong Sima, Carene Anne Alene (Human Genetics) (*cum laude*)  
Nolan, Heidi (Medical Physiology)  
Nombula, Makabongwe (Biostatistics)  
Ntafua, Mulumba (Clinical Epidemiology)  
Paarwater, Brandon Antony (Human Genetics) (*cum laude*)  
Roomaney, Aqeedah Abbas (Human Genetics) (*cum laude*)  
Saal, Car-Lee (Clinical Epidemiology) (*cum laude*)  
Scholtz, Denise (Human Genetics)  
Swart, Xan (Biostatistics) (*cum laude*)  
Van Niekerk, Nadia (Medical Physiology)

### Magister in die Natuurwetenskappe in Sportwetenskap Master of Science in Sport Science

Adam, Faatima (*cum laude*)  
Blakeway, Sarah Katherine  
Davis, Nikita (*cum laude*)  
Dube, Sindiso Rangarirai  
Louw, Maria Magretha Wilhelmina  
Madi, Lwazi Nqa (*cum laude*)  
Robertson, Emily Jeanne

### Magister in die Geneeskunde Master of Medicine

Alzanad, Fatima (Haematological Pathology)  
Bezuidenhout, Morne Cornelius (Chemical Pathology)  
Booyesen, Lynn (Paediatrics)  
Hendricks, Sade Isabel (Anaesthesiology)  
Kerswill, Suzanne (Paediatrics)  
Le Roux, Alwyn Petrus (Radiological Diagnosis)  
Mathure, Muhammad Wakeel (Paediatrics)  
Messiahs, Bradley Clinton (Radiological Diagnosis)  
Pretorius, Rupert (Urology)

Rashid, Akram Ghayth Aboulqassim (Internal Medicine)  
Scannell, Friederike (Anaesthesiology)  
Sebitosi-Van Jaarsveld, Sandra Namugga Nakayizza  
(Paediatrics)  
Shah, Candice (Paediatrics)  
Silolo, Siseko (Urology)  
Thomas, Jason Peter (Ophthalmology)  
Van der Colff, Fredrich James (Ophthalmology)  
Van Rensburg, Roland (Clinical Pharmacology) (*cum laude*)

### Magister in Voeding in Publieke Gesondheid Master of Public Health Nutrition

Engelbrecht, Liezel Maryke (Public Health Nutrition) (*cum laude*)  
Indongo, Charles Ndeshipanda Halolye (Public Health Nutrition)  
Johnson-Dollie, Tasneem (Public Health Nutrition)  
Nedzingahe, Vhushavhelo (Public Health Nutrition)

### Magister in Menslikerehabilitasiestudies Master of Human Rehabilitation Studies

Kaseke, Tatenda Hazel (Rehabilitation)

### Magister in die Wysbegeerte Master of Philosophy

Adu-Amankwaah, Francis (Cancer Science)  
Armstrong, Catherine Jane (Infant Mental Health)  
Bangani, Onga (Health Systems and Services Research)  
Cawe, Busisiwe (Health Professions Education)  
De Wet, Daniël Rudolph (Health Professions Education)  
Govender, Lynelle (Health Professions Education) (*cum laude*)  
Joubert, Lloyd Henry (Cardiology)  
Kabini, Shadrack Nyabela (Health Professions Education)  
Lucas, Aina Ndinelago Tangi (Health Professions Education)  
Magula, Luzuko (Child and Adolescent Psychiatry)  
Moses, Carmen Delicia (Health Professions Education)  
Moxley, Karis (Health Professions Education) (*cum laude*)  
Okhue, Sylvester Omonkhodion (Family Medicine)  
Van der Walt, Lizanne (Health Professions Education)  
Van Heerden, Elza (Family Medicine) (*cum laude*)  
Van Zyl, Maria Elizabeth (Health Professions Education)  
Whittaker, Tereza Mary (Infant Mental Health)  
Williams, Leone Geraldine (Health Professions Education)

### Magister in Arbeidsterapie Master of Occupational Therapy

Michau, Cecile  
Tuyishime, Jean Claude  
Van Wyk, Megan Barbara

### Magister in die Verpleegkunde Master of Nursing

Battle, Donna Glynnis (*cum laude*)  
Chencinski, Luna Luise  
De Jager, Felicity Louisa  
De Lange, Petra Frances Rocher  
Haihambo, Teopolina Tunependa  
Kamohelo, Tholoana Joyce (*cum laude*)

Kunz, Thalita Yvonne  
Landu, Zandile Kolosani  
Nagenda, Mapaseka Chabalala  
Sagwa, Clemence Munezero  
Shaanika, Aletha Nangula  
Syster, Sharna Renee  
Uazeua, Mercia  
Zhangazha, Angelina

**Magister in Terapeutiese Voeding  
Master of Therapeutic Nutrition**

Byrne, Jessica Anne (Therapeutic Nutrition) (*cum laude*)  
Chin, Cindy Angela (Therapeutic Nutrition) (*cum laude*)  
Lipshitz, Melanie (Therapeutic Nutrition) (*cum laude*)

**Magister in Fisioterapie  
Master of Physiotherapy**

Cason, Katherine Mary  
Conradie, Thandi (*cum laude*)  
Du Preez, Emmari (*cum laude*)  
Erasmus, Annemie  
Janse van Vuuren, Anika Corlé (*cum laude*)  
Jansen van Rensburg, Emma Anita (*cum laude*)  
Lategan, Roxanne Ava  
Lugusa, Gladwell Kayalo (*cum laude*)

**Magister in Spraak-Taalterapie  
Master in Speech-Language Therapy**

Le Roux, Carla

**Magister in Verslawingsorg  
Master in Addiction Care**

Van den Berg, Gizela

**Honneurs-Baccalaureus in die Natuurwetenskappe  
Bachelor of Science Honours**

Robson, Erin Jenny (Physiology (Medical)) (*cum laude*)

**Honneurs-Baccalaureus in die Natuurwetenskappe in  
Sportwetenskap  
Bachelor of Science Honours in Sport Science**

Apollis, Amy Jade (Performance Sport)  
Conradie, Henk (Performance Sport)  
Mbedzi, Zwonaka (Performance Sport)

**Nagraadse Diploma in Verslawingsorg  
Postgraduate Diploma in Addiction Care**

Carstens, Robyn Jane

**Nagraadse Diploma in Huisartskunde  
Postgraduate Diploma in Family Medicine**

Kongolo, Kalantanda Jerome  
Leslie, Ifedolapo Oluwakemi  
Nsangi, Mubibala  
Ukaegbu, Joel Okechi

**Nagraadse Diploma in Beroepsgeneeskunde  
Postgraduate Diploma in Occupational Medicine**

Ayuk, Edwin Tambe  
Kasiringua, Ngaaruhe Charlotte

**Baccalaureus in die Geneeskunde en Baccalaureus in die  
Snykunde  
Bachelor of Medicine and Bachelor of Surgery**

Arendse, Carlynne Adriette  
Arendse, Christopher Stephen Llewellyn  
Israel, Shafeeqah  
Moodie-Collison, Bronte Lorraine  
Naroth, Reezah Tashrick  
Nyawo, Monitar Thulebona  
Solomons, Tiffany-Jade Sarah





**Fakultät** **Faculty**

Ingenieurswese Engineering

**5 April 2022 - 17:00**

**5 April 2022 - 17:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

1. Akademiese prosesie kom die saal binne.
2. Speel van die Nasionale Lied.
3. Formele konstituering deur die Kanselier.
4. Verwelkoming deur die Kanselier.
5. Voorstelling van die eredoktorandus en toekenning van die eregraad deur die Kanselier.
6. Voorstelling van kandidate wat kwalifikasies ontvang deur die dekaan van die fakulteit en toekenning van kwalifikasies deur die Kanselier.
7. Voorstelling van kandidaat vir die Kanselierstoekenning en oorhandiging van die toekenning deur die Kanselier.
8. Sluiting deur die Kanselier.
9. Akademiese prosesie verlaat die verhoog.

*Staan asseblief*

## Programme

*Please stand*

*Please stand*

*Please sit*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Chancellor.
4. Welcome by the Chancellor.
5. Presentation of the candidate for the honorary doctorate and conferment of the degree by the Chancellor.
6. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Chancellor.
7. Introduction of the candidate for the Chancellor's Award and presentation of the award by the Chancellor
8. Closing by the Chancellor.
9. The academic procession leaves the stage.

*Please stand*

# Eregraad | Honorary Doctorate

## FAKULTEIT INGENIEURSWESE FACULTY OF ENGINEERING

Die graad Doktor in die Ingenieurswese (DIIng), *honoris causa*, aan  
The degree Doctor of Engineering (DEng), *honoris causa*, to

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**Andries (Andy) Calitz**

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*sy bydrae tot die ontwikkeling van die wêreldwye energievoorsieningsektor, en sy visionêre leierskap en merkwaardige prestasies op energiegebied.*

Van Asië en Kanada tot Suid-Afrika het Andries (Andy) Calitz 'n kernrol in die wêreldwye energievoorsieningsektor vervul. Dié voormalige hoof van LNG Canada en bekleër van verskeie senior bestuursposte by die energiekorporasies Shell en Eskom is tans die sekretaris-generaal van die Internasionale Gasunie en uitvoerende hoof van FutureEnergy.

Calitz, wat in 1981 sy graad in Elektriese Ingenieurswese aan die Universiteit Stellenbosch behaal het, het sy loopbaan by Eskom begin. Hier vervul hy etlike bestuurs- en uitvoerende rolle op die terrein van elektrisiteitsproduksiebeplanning, -prysbepaling, -sektorherstrukturering en -transmissie. Hy was gedurende sy tyd by Eskom verantwoordelik vir die bedryf van Suid-Afrika se hoëspanningsnetwerk, en leier van die geïntegreerde beplanningsproses vir die land se elektrisiteitsbedryf.

Nadat hy hom in 1996 by Shell aansluit, het hy by internasionale baanbreker-energieprojekte betrokke geraak. Hy het 'n onbesproke geskiedenis in die bestuur van internasionale energiemegaprojekte, veral in die konteks van gesamentlike ondernemings. Hy was al by energiebeleggings ter waarde van \$100 miljard betrokke en het tot bedryfsontwikkeling in lande wêreldwyd bygedra.

Calitz het ook kwalifikasies in die handel, bestuur en sake-administrasie aan die Harvard-bestuurskool, die universiteite van die Witwatersrand en Suid-Afrika sowel as INSEAD verwerf.

*his contribution to the development of the global energy supply sector, and his visionary leadership and remarkable achievements in the energy field.*

From Asia and Canada to South Africa, Andries (Andy) Calitz has played a prominent role in shaping the global energy supply sector. Currently secretary-general of the International Gas Union and chief executive of FutureEnergy, Calitz used to head up LNG Canada and held various senior executive positions at energy corporations Shell and Eskom.

This Stellenbosch University Electrical Engineering alumnus from the class of 1981 started his career at Eskom, where he fulfilled various managerial and executive roles in electricity production planning, pricing, sector restructuring, and transmission. During his time at Eskom, he was responsible for the operation of South Africa's high-voltage grid and led the integrated planning process for the country's electricity industry.

After joining Shell in 1996, he became involved in ground-breaking international energy projects. He has an impeccable track record of managing international energy mega projects, especially in the context of joint ventures. He has been involved in energy investments to the tune of \$100 billion and contributed to business development in countries across the globe.

Calitz also holds qualifications in commerce, management and business administration from Harvard Business School, the universities of the Witwatersrand and South Africa, as well as INSEAD.



# Fakulteit Ingenieurswese | Faculty of Engineering

## DOKTORALE KWALIFIKASIES | DOCTORAL QUALIFICATIONS

### DOKTOR IN DIE INGENIEURSWESE DOCTOR OF ENGINEERING

**BELLO**, Fatimatu (Chemical Engineering)

#### **Development of multistep biorefinery schemes for the production of nanocellulose and high value-added bioproducts from mango seed**

Management of the detrimental effects of petroleum-based products depends on the efficient utilisation of renewable agro-industrial waste, which could be achieved through sustainable and efficient pre-treatment/conversion processes. In this study, multistep biorefineries are developed and optimised to determine their feasibility for recovering multi-products from mango seed husk and kernel for diverse application, as opposed to the reported single-product schemes that result in inefficient usage of bioresource potential. The effect of the multistep process on nanocellulose production using non-catalysed organic acids is tested and compared to the classical approach. The developed multistep biorefineries are found to show potential for multi-product recovery, including nanocellulose.

*Supervisor:* Prof AFA Chimphango

*Co-supervisor:* Prof JF Görgens

**BESTER**, Coenraad Petrus (Industrial Engineering)

#### **A function-based relevance model for making sense of technological change in the context of a firm**

This study addresses the need for well-grounded management tools and methodologies that link the technology opportunities and risks posed by phenomena such as the Fourth Industrial Revolution to a firm's strategy. It proposes a model and supportive methodology – an interpretive lens – that could help the leadership of a firm make sense of technology, and keep up with the ever-increasing rate at which new technologies emerge, in the context of their strategy. The study describes the development of the proposed model, called the function-based relevance model (FRM), from concept to working demonstrator, by applying a text network approach.

*Supervisor:* Prof CWI Pistorius

*Co-supervisor:* Prof SS Grobbelaar

**CHIHAMBAKWE**, Zviemurwi Johnny (Industrial Engineering)

#### **A framework for creating shared value at the base of the pyramid through micro-manufacturing factories**

This study develops a framework and management tool to guide cross-sector organisations in creating manufacturing shared value (MSV) in base-of-pyramid (BoP) communities. The MSV framework is based on a capability-building strategy, an implementation process strategy and a growth strategy. The management tool informs implementers on key considerations for the profitable and sustainable creation of MSV in BoP communities. The framework and tool are refined and validated through eight design cycle iterations informed by the design science research methodology. The results of this study contribute to the fulfilment of global sustainable development goals 1, 8 and 9.

*Supervisor:* Prof SS Grobbelaar

*Co-supervisor:* Prof S Matope

**CLAASEN**, Jaleel Joseph (Civil Engineering)

#### **Experimental testing and numerical modelling of a large-scale modular, cellular, structural steel-and-composite sandwich-decking flooring system in fire**

According to the Southern African Institute of Steel Construction (SAISC), the current office building market segment in South Africa does not meet public, developer and tenant expectations. Through industry input, the SAISC developed performance criteria for future office building development, as well as a cellular-beam structure (CBS) that meets all performance criteria. This study forms part of a larger research project to quantify the CBS system's fire rating experimentally and numerically. In addition to large-scale standard fire tests, small and medium-sized tests are conducted. Numerical models are then developed and benchmarked using the experimental data.

*Supervisor:* Prof RS Walls

*Co-supervisor:* Dr A Cicione

**CROUCAMP**, Marco (Industrial Engineering)

#### **Evolutionary algorithms for robot path planning, task allocation and collision avoidance in an automated warehouse**

This study proposes an evolutionary algorithm framework that can sequence products to be picked or binned in a warehouse, allocate the products to picking robots, and optimise the routing of the robots. The algorithm framework incorporates collision avoidance and multiple objectives. The results show that the framework is able to create and improve feasible real-world solutions to the part sequencing and allocation problem. This study is the first to solve this specific variation of the part sequencing and allocation problem using metaheuristics and evolutionary multi-objective algorithms, given that all collisions must be avoided.

*Supervisor:* Prof J Grobler



**DE WET**, Martinus Theunis Steyn (Industrial Engineering)

### **A multi-methodology system as project management approach in South African banking**

The multi-methodology system is proposed as an enhanced approach to information technology project management in South African banking. It incorporates systems thinking principles such as Ashby's law of requisite variety, and adapts Stafford Beer's viable system model for the temporary organisation. Having been presented to leading practitioners in industry, the proposition has been validated as theoretically sound, and the practitioners expect it to be implementable and of value in practice. Furthermore, the research approach developed for this study presents a novel contribution from which future studies of projects and project management can benefit.

*Supervisor:* Prof CSL Schutte

**DU PLESSIS**, Clarice (Mechanical Engineering)

### **Scaling of axial fan noise**

The main mechanisms of axial fan noise, namely trailing edge, tip vortex formation and turbulence ingestion noise, are predicted numerically, semi-empirically and analytically. Single-aerofoil theory is used to combine the noise mechanisms so as to represent the noise generated by a fan at various volume flow rates and tip clearances. This prediction is validated by experimental measurements for one fan diameter. The effect of a change in fan diameter on the generated far-field noise is investigated, and compares favourably with an existing fan scaling method and proprietary equations used by cooling system suppliers.

*Supervisor:* Prof SJ van der Spuy

*Co-supervisor:* Prof HCR Reuter

**FATAAR**, Humaira (Civil Engineering)

### **Fatigue behaviour of steel-fibre-reinforced concrete**

Many applications of concrete may experience fatigue loading at some point during their lifespan. However, few researchers consider the fatigue behaviour in the cracked state. In fibre-reinforced concrete (FRC), the fibres are activated only at crack initiation. Prior to this, the FRC composite deforms elastically. This study investigates the fatigue life and failure mechanisms of pre-cracked steel-FRC subjected to fatigue loading. Experiments are conducted at a single fibre and macroscopic level. The pre-crack ranges from 0,6 mm to 2,5 mm, at load levels of 50%, 70% and 85% of the average maximum static load. A fatigue-life prediction approach is developed to forecast the fatigue behaviour.

*Supervisor:* Prof R Combrinck

*Co-supervisor:* Prof WP Boshoff (*external*)

**HAGEDORN-HANSEN**, Devon (Industrial Engineering)

### **Laser powder bed fusion on cemented tungsten carbide cutting tools**

This study develops a unique tungsten carbide-cobalt cemented carbide cutting tool through laser powder bed fusion (L-PBF). The influence of factors encountered during L-PBF and their impact on specific cutting tool properties are studied with the aim of producing a cutting tool that can serve as an alternative to commercially available press-and-sinter-produced tools. Scanning strategy is observed to be the most significant factor. A diagonal raster strategy with an 80-degree alternating rotation produces the best cutting inserts for the specific insert geometry and grade. The developed cutting inserts are comparable to conventional inserts for certain cutting performance indicators.

*Supervisor:* Prof N Sacks

*Co-supervisors:* Profs S Matope, OFRA Damm

**HUMAN**, Carlo (Mechatronic Engineering)

### **A decision framework for the aggregation of digital twins**

The presented framework enables systematic, effective decisions when designing a system of digital twins to represent a complex physical system. The design framework is broadly applicable and enables traceability of design choices. The steps in the framework are needs and constraints analysis, physical system decomposition, services allocation, performance and quality considerations, implementation considerations, and verification and validation. These steps are moulded into six design patterns by focusing on key quality attributes. The design framework and patterns are subsequently demonstrated and validated through three case studies: a heliostat field, a water distribution system and a smart city.

*Supervisor:* Prof AH Basson

*Co-supervisor:* Dr K Kruger

**HÜSSELMANN**, Günther (Industrial Engineering)

### **Bus route design and frequency setting for public transit systems**

The availability of effective public transport systems is becoming an increasingly urgent problem in urban areas worldwide due to rising levels of traffic congestion. This study considers the design of a suite of mathematical models in the form of bi-objective optimisation problems to help bus companies make high-quality decisions in terms of bus transit route design and frequency setting. Solutions to these models enable bus transit operators to select network routes, and frequencies for buses operating along these routes, that would achieve a desirable trade-off between minimising passenger cost and simultaneously reducing operator cost.

*Supervisor:* Prof JH van Vuuren

*Co-supervisor:* Prof SJ Andersen



**JACKLIN**, Dylan Michael (Civil Engineering)

**Plant biofiltration for urban stormwater runoff purification in South Africa**

Polluted urban stormwater has the potential to harm South Africa's freshwater resources. This study presents a compilation of investigations that promote plant biofiltration as an effective yet sustainable alternative to conventional infrastructure for stormwater quality improvement. This is achieved through the identification of potential phytoremediators via the development of a plant selection tool, and design optimisation focusing on appropriate growth media, plant species and biofilter specifications. Investigations into suitable mathematical models to improve our understanding of plant biofilter complexity and sustainable implementation are also performed.

*Supervisor:* Dr IC Brink

*Co-supervisor:* Prof SM Jacobs

**JOHNSON**, Leanne (Electronic Engineering)

**Advances in Pedestal Substrate-Integrated Waveguide filters**

Microwave filters protect sensitive radio receivers from out-of-band signals. This study presents a number of improvements to a class of Substrate-Integrated Waveguide microwave filters, include a configuration with positive and negative couplings for optimal frequency and phase performance, a low-loss variant with reduced dielectric for very low-power applications, and a frequency-tunable variant using sets of PIN-diodes for agile receivers. These filters are low-cost, as they can be etched using normal Printed-Circuit-Board techniques, yet offer excellent electrical performance, and are of high interest for mobile communications such as 5G devices, Wi-Fi and GPS.

*Supervisor:* Prof P Meyer

*Co-supervisors:* Prof B Potelon (*external*), Dr E Meyer (*external*)

**LAMPRECHT**, Johannes Hendrik (Chemical Engineering)

**Characterisation of liquid distribution and behaviour inside randomly packed columns using electric impedance tomography**

A wire-mesh electrical impedance tomography (EIT) system is designed and constructed to visualise and quantify liquid distribution behaviour inside randomly packed columns. The system can be used to characterise random packing, and to quantify the impact of liquid physical properties and packing geometry on the distribution of liquid in the inter-packing voids. It also enables evaluation of the transition between regimes of droplet coalescence and droplet breakup, and the subsequent mechanistic change in liquid holdup. As such, this novel EIT characterisation method is a very useful tool to be applied in both hydrodynamic and kinetic prototyping of random packing material.

*Supervisor:* Prof AJ Burger

**MENDES**, Angelo Armando da Silva (Industrial Engineering)

**A modelling framework for integrated compressor maintenance scheduling and fuel cost minimisation in natural gas transmission networks**

The problem considered in this study involves the integration of maintenance scheduling and fuel cost minimisation in natural gas transmission networks. Previously, these two operational problems were solved separately in the literature. In the context of three case studies, however, it is shown that a combined modelling approach holds considerable benefits over separate modelling maintenance scheduling and fuel cost minimisation. A customised, simulated annealing algorithm is designed for solving the combined model approximately, which algorithm is found to be capable of returning high-quality operational solutions for natural gas transmission networks.

*Supervisor:* Prof JH van Vuuren

**MEYER**, Edmund Stanhope (Civil Engineering)

**South African building-envelope thermal performance simulation: Parameters and the role of moisture content**

This study investigates the role of building envelope design in reducing heating and cooling energy consumption and improving human comfort for commercial and residential buildings. Parametric analysis of the performance of South African Green Star-rated and low-income buildings is carried out. The results confirm the impact of facade construction material selection. Increased specific heat and density along with reduced conductivity and solar heat gain coefficient reduce the energy consumption of predominantly glazed buildings. Validation analysis of an instrumented low-income house confirms that hygrothermal consideration is essential for the accurate analysis of low-income buildings of exposed porous building materials.

*Supervisor:* Prof GPAG van Zijl

*Co-supervisor:* Dr WI de Villiers

**MEYER**, Markus Willem (Civil Engineering)

**The characterisation of the dynamic interaction between highway bridges and long, multi-trailer heavy vehicles**

Many countries around the world are experiencing an increase in demand for freight transport by road. One solution is to introduce larger heavy vehicles, which are capable of transporting more freight. These vehicles have more trailers and, therefore, are longer than existing heavy-vehicle traffic, causing unique dynamic bridge behaviour during vehicle-bridge interaction. Through the development of a vehicle-bridge interaction model, this study identifies the unique dynamic bridge behaviour induced by these vehicles, producing a framework that quantifies the dynamic loads they induce on highway bridges.

*Supervisor:* Prof NPJ de Koker

*Co-supervisor:* Prof R Lenner

**MIHIRETU**, Gezahegn Teklu (Chemical Engineering)

**Advancing lignocellulosic biorefineries through co-production of hemicellulosic biopolymers and bioenergy**

A lignocellulosic biorefinery system for the conversion of agro-industrial residues into bioenergy and hemicellulosic biopolymers intended for high-value applications, was developed. Considering the critical role of biomass fractionation to achieve this, two novel pretreatment approaches were experimentally investigated to establish optimal conditions for co-production of xylan biopolymers and bioethanol in a biorefinery setup. Further techno-economic study results revealed that the economic viability of the envisaged biorefinery complex was significantly improved as a result of such co-production scheme, albeit with increased energy requirements. The biorefinery was also shown to have a positive contribution towards mitigating greenhouse gas emissions

*Supervisor:* Prof JF Görgens

*Co-supervisor:* Prof AFA Chimphango

**MOELICH**, Gerrit Marius (Civil Engineering)

**Plastic shrinkage cracking and other evaporation-related impairments in 3D-printed and cast concrete**

Due to the absence of formwork, 3D-printed concrete is vulnerable to rapid pore water evaporation immediately after extrusion, with plastic shrinkage cracking a potential consequence. This research proposes methods to characterise and estimate on-site evaporation rate, testing protocols, active and passive mitigation measures and a model for plastic shrinkage cracking in 3D-printed concrete. The effect of early-age pore water evaporation on mechanical and durability performance was investigated and an analytical model was proposed for interlayer bond strength based on the amount of surface moisture that evaporates during printing from the interlayer plane.

*Supervisor:* Prof R Combrinck

**MOREMI**, Tsietsi John (Industrial Engineering)

**An ant colony optimisation approach to scheduling truck-and-drone delivery systems**

This study proposes various novel truck-and-drone last-mile delivery system optimisation problems. A delivery drone is launched from a purpose-built truck, completes an additional delivery while the truck is en route between two customer locations, and intercepts the truck after completing the additional delivery. An ant colony system/k-means clustering approach is developed and tested on drone-scheduling benchmark problems against optimal solutions, other population-based metaheuristics and a truck-only delivery system. The truck-and-drone delivery system is shown to have a significant positive impact on delivery time performance.

*Supervisor:* Prof J Grobler

*Co-supervisor:* Prof PM Kaminsky (*external*)

**MOSSISSA**, Amsalu Tolessa (Chemical Engineering)

**Development of a techno-economic analysis tool for anaerobic digestion in smallholder farming systems in the context of the water–energy–food nexus**

Anaerobic digestion (AD) is a well-established technology for bioenergy production, but uptake is low among African smallholder farmers. This study evaluates the potential of agricultural residue feedstock in smallholder farming systems in South Africa and Madagascar. A method for multicriteria technology selection is developed, as well as a novel approach to optimise a co-digestion strategy for agricultural residues using probabilistic simulation. In addition, a techno-economic assessment tool is compiled that is explicitly centred in the water–energy–food framework to evaluate AD. Results demonstrate that the implementation of smallholder-based AD is feasible, with a financial and economic rate of return of 14% and 67% respectively.

*Supervisor:* Prof NJ Goosen

*Co-supervisor:* Prof TM Louw

**NEL**, Nicole (Civil Engineering)

**An investigation into untreated greywater as a supplementary household water source to augment potable municipal supply, with consideration of the associated risks**

There is a critical gap when it comes to understanding the uptake of untreated greywater in fully serviced suburban areas, and the trade-off between the risks (quality) and potential water savings (quantity). The main aim of this study is to gain a better understanding of this gap. It is found that household water savings associated with the manual collection of untreated greywater is <10%, which is markedly less than savings achieved from having multiple household water sources (69%). This, coupled with variable quality and the relatively high risk to public health, the environment and infrastructure, provides insight into the quality–quantity nexus.

*Supervisor:* Dr IC Brink

*Co-supervisor:* Prof HE Jacobs

**OLUBAMIWA**, Oreoluwa Ifeoluwa (Electrical Engineering)

**Design development of brushless doubly fed machines**

Brushless doubly fed machines (BDFMs) are reliable alternatives to doubly fed induction generators. In this study, different aspects of the design of BDFMs are investigated. A design evaluation procedure is proposed for grid compliance considerations at the design stage of BDFMs. A coupled-circuit model is developed to aid rapid BDFM rotor topology design, and a complete BDFM design and optimisation process is proposed and evaluated. With the emphasis on improving the relative power density and efficiency of BDFMs, suitable pole-pair combinations are identified. In addition, practical ranges for the BDFM electric and magnetic loadings are determined across different power ratings.

*Supervisor:* Dr N Gule

*Co-supervisor:* Prof MJ Kamper



**PUNT**, Tiaan (Chemical Engineering)

### **Development of an environmentally friendly and sustainable hydrometallurgical process for lithium-ion battery recycling**

Lithium-ion batteries are used extensively in consumer electronics and electric vehicles, and contain the strategically sensitive metals lithium and cobalt. Furthermore, the disposal of end-of-life batteries on landfill sites poses an environmental hazard. Therefore, recycling lithium-ion batteries is critically important in moving to a more sustainable economy. This study develops an environmentally friendly hydrometallurgical process using citric-acid leach solutions to recover manganese, lithium, cobalt and nickel from end-of-life batteries. The optimised, novel process uses solvent extraction and precipitation, and is able to recover the metals as separate product solutions with high efficiency and limited environmental impact.

*Supervisor:* Prof G Akdogan

*Co-supervisors:* Prof SM Bradshaw, Mr AP van Wyk

**ROSSOUW**, Arnoux (Electrical Engineering)

### **Planar magnetron sputtering of Ti and TiO<sub>2</sub> for polyethylene-terephthalate track-etched membrane surface modification**

This study covers the research, development and fabrication of hybrid polymeric membranes, lab-to-fab, for use in advanced technologies such as separation, biotechnology and microelectronics. Through a combination of fundamental and applied research, advancements in developing and synthesising hybrid membranes based on metal-polymeric and ceramic-metal-polymeric track-etched membranes are consolidated. The combination of porous, organic films and inorganic layers to develop hybrid membranes is achieved by the surface modification of porous polyester membranes using large-scale, roll-to-roll magnetron sputtering of Ti and TiO<sub>2</sub>. Planar roll-to-roll magnetron sputtering on top of polyethylene-terephthalate track-etched membranes has never been done before.

*Supervisor:* Prof WJ Perold

*Co-supervisor:* Prof AN Nachaev (*external*)

**SMIT**, Willem Andries (Electronic Engineering)

### **Mobile processors for scientific use: A critical analysis of the impact of design trends on performance and energy usage in scientific applications**

The technical and market challenges of the past decade or so have resulted in a strong emphasis on the development of energy-efficient multicore central processing units (CPUs). This research sets out to measure the real effect of these developments on the performance and energy usage of the devices we use every day. The focus is on scientific applications, and particularly how processors intended for mobile devices compare to those intended for desktop devices in the scientific environment. The results show that successive generations of desktop devices are slower, while energy efficiency trends downward across all devices.

*Supervisor:* Prof JA du Preez

**SMITH**, Sonja Almi Milé (Chemical Engineering)

### **Improving the description of quadrupolar molecules and their mixtures in the SAFT-VR Mie framework**

CO<sub>2</sub>-containing mixtures, which are important for many industrial processes, are complicated by quadrupolarity and criticality. Traditional equations of state do not take these characteristics into account and, therefore, are unable to describe CO<sub>2</sub>-containing mixtures accurately. The statistical associating fluid theory with variable-range Mie-potential (SAFT-VR Mie) is arguably the most advanced SAFT variant. This study extends SAFT-VR Mie with a quadrupolar term to account for quadrupolar interactions. The model is further treated with renormalisation corrections to improve description of the critical region. In doing so, excellent descriptions of mixture-phase boundaries are obtained in a predictive manner.

*Supervisor:* Prof G Akdogan

*Co-supervisors:* Prof SM Bradshaw, Mr AP van Wyk

**STREICHER**, Simon Frederik (Electronic Engineering)

### **Incremental inference on higher-order probabilistic graphical models applied to constraint satisfaction problems**

Probabilistic graphical models (PGMs) are used to solve complex probabilistic relationships. However, the PGM structures primarily employed in practice are suboptimal. Therefore, this study presents three contributions to PGM literature. The first is a comparison between factor graphs and cluster graphs on graph-colouring problems such as Sudokus, indicating a significant advantage for preferring cluster graphs. The second is an application of cluster graphs to a practical problem in cartography: land cover classification boosting. The third is a PGM formulation for constraint satisfaction problems, and an algorithm called purge-and-merge to solve such problems too complex for traditional PGMs.

*Supervisor:* Prof JA du Preez

**VAN STADEN**, Chantelle Yvonne (Electrical Engineering)

### **Geospatial capacity allocation framework of wind and solar photovoltaic renewable generation for optimal grid support**

A robust and flexible optimisation framework is developed for medium to long-term geospatial capacity allocation of wind and solar resources. The framework adopts a probabilistic risk-based approach that minimises the frequency of events where high residual load values require ancillary services interventions. The renewable energy resources are categorised into geospatial clusters in terms of the statistical properties of the spatiotemporal wind and solar power profiles for a given set of daily and seasonal time-of-use periods. The framework incorporates flexible minimum and maximum allocation constraints that allow application to real-world scenarios where capacity allocation constraints apply at a regional level.

*Supervisor:* Prof HJ Vermeulen

**VAN WYK**, Marnus (Industrial Engineering)

**Integrated feedstock optimisation for multiproduct polymer production**

A chemical complex can have multiple value chains, some of which may span across geographic locations. Decisions regarding the distribution of feedstock to different production units are required to maximise profit and minimise energy consumption in the value chain. Unexpected events can cause an imbalanced value chain, which requires timely decision-making to mitigate further adverse consequences. In this study, an integrated decision support system is developed for hourly and daily decision-making, incorporating single and bi-objective metaheuristic algorithms to generate near-optimal production schedules for the distribution of feedstock in a complex value chain.

*Supervisor:* Prof JF Bekker

**VON LEIPZIG**, Tanja (Industrial Engineering)

**Adaptive games for learner and systems (bidirectional) learning**

Dynamic personalisation of learning trajectories that integrate different perspectives and variable scenarios is a purposeful and viable way to improve the quality, effectiveness and efficiency of education and training. Aggregating learner behaviours and results in such trajectories enables contextualised adaptation of the learning material and experience by means of bidirectional learning. In this study, an architecture is developed for creating parameterised, adaptive and bidirectional learning games for specific scenarios in a faster, more effective and more efficient manner. By incorporating stakeholders as co-designers, and enabling bidirectional learning, the architecture provides learning and improvement opportunities for various stakeholders.

*Supervisor:* Prof CSL Schutte

*Co-supervisors:* Profs VP Hummel, D Lutters



# Fakulteit Ingenieurswese | Faculty of Engineering

## ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

### **Magister in Ingenieurswetenskappe in Biomediese Ingenieurswese** **Master in Engineering Science in Biomedical Engineering**

Du Plessis, Stefan (Biomedical Engineering) (*cum laude*)  
Rabikoosun, Sagal (Biomedical Engineering)

### **Magister in die Ingenieurswese** **Master of Engineering**

Abdulla, Mubeen (Industrial Engineering) (*cum laude*)  
Ackerman, Riaan (Civil Engineering)  
Agbetsiafa, Insight Nyenya Aku (Electronic Engineering)  
Allen, Tamara Candice (Mechatronic Engineering)  
Appollis, Jody (Civil Engineering)  
Asimwe, Martha Mukama (Engineering Management) (*cum laude*)  
Beukes, Penny (Civil Engineering)  
Bosman, Eduard (Mechanical Engineering) (*cum laude*)  
Botha, Ayden Dennis (Civil Engineering) (*cum laude*)  
Botha, Christiaan Stephanus (Civil Engineering) (*cum laude*)  
Botha, Daniel Johannes (Industrial Engineering)  
Botha, Stefan (Electrical Engineering) (*cum laude*)  
Bras, Edward Hendrik (Chemical Engineering) (*cum laude*)  
Brown, Ian (Civil Engineering) (*cum laude*)  
Bunn, Nicholas Raymond (Mechatronic Engineering)  
Burger, André Jacques (Industrial Engineering) (*cum laude*)  
Carstens, Rain Bailey (Civil Engineering)  
Cillie, Dewald Jacques (Industrial Engineering) (*cum laude*)  
Corlett, Bradley Michael (Industrial Engineering)  
Crockart, Ivan Calitz (Mechatronic Engineering)  
Dantu, Ryan Keagan (Chemical Engineering)  
De Beer, Samuel Heinrich (Industrial Engineering)  
De Klerk, Andre (Mechanical Engineering) (*cum laude*)  
Deacon, Quintus (Engineering Management) (*cum laude*)  
Du Plessis, Susanna Hendrina (Chemical Engineering)  
Duvenhage, Hein-Pierre (Civil Engineering) (*cum laude*)  
Elliott, Hector (Civil Engineering)  
Featherston, Nicholas Rudyard (Civil Engineering)  
Fenner, Chaz Courtney (Mechanical Engineering) (*cum laude*)  
Ferreira, Fabian Ethan (Chemical Engineering) (*cum laude*)  
Fortuin, Devlin David (Civil Engineering)  
Gerber, Daymen (Civil Engineering)  
Gondwe, Bob (Civil Engineering)  
Gous, Michelle Danille (Civil Engineering) (*cum laude*)  
Grobler, Johannes Hermanus (Civil Engineering)  
Heath, Reynard Johan (Mechatronic Engineering)  
Hershaw, James Robert (Electronic Engineering) (*cum laude*)  
Hollander, Liza (Civil Engineering) (*cum laude*)  
Homan, Dewald (Electronic Engineering) (*cum laude*)  
Hunter, Jonathan Douglas (Civil Engineering)  
Hutton, Tainton (Electrical Engineering) (*cum laude*)  
Jacobs, Pierre Malan (Engineering Management)  
Jeza, Sabelo Acceptance (Chemical Engineering)  
Keyser, Matthew Paul (Mechanical Engineering) (*cum laude*)  
Khoza, Tenele Prosperity (Civil Engineering)  
Kirstein, Daniel Petrus (Mechanical Engineering)  
Koch, Daniel Gerhardus (Civil Engineering)  
Kotzé, Jan Christiaan (Civil Engineering)  
Kramer, DP (Mechatronic Engineering) (*cum laude*)  
Kriek, Christi Gepke (Chemical Engineering) (*cum laude*)

Kritzinger, Daniel Strauss (Mechatronic Engineering) (*cum laude*)  
Laker, Chris James (Mineral Processing)  
Landman, Rossouw Johan Frederick (Industrial Engineering) (*cum laude*)  
Laubscher, Jennifer Mignonne (Industrial Engineering) (*cum laude*)  
Le Roux, Jana Hendrina (Civil Engineering) (*cum laude*)  
Lebea, Itumeleng Lionel (Civil Engineering)  
Lingenfelder, Tanya (Civil Engineering) (*cum laude*)  
Lombard, Schalk Jacobus (Mechatronic Engineering)  
Loser, Sheldon Brian (Electrical Engineering) (*cum laude*)  
Louw, Jakobus Murray (Electronic Engineering) (*cum laude*)  
Louw, Michele (Mechatronic Engineering)  
Maarsingh, Berno (Industrial Engineering) (*cum laude*)  
Madyibi, Salizwa Siliziwe (Chemical Engineering)  
Malan, Christian (Electronic Engineering) (*cum laude*)  
Malan, Jean De'M (Civil Engineering) (*cum laude*)  
Malan, Phillip Christian (Industrial Engineering) (*cum laude*)  
Matutala, Ifodji Gloire (Civil Engineering) (*cum laude*)  
Mboweni, Xivonigo Amon (Civil Engineering)  
Meli, Menelaos (Electronic Engineering)  
Merbold, Ghiete (Civil Engineering) (*cum laude*)  
Meyer, Jacques Muller (Electronic Engineering) (*cum laude*)  
Meyer, Karin (Civil Engineering) (*cum laude*)  
Mguni, Nontshumayelo Millicent (Electronic Engineering)  
Migale, Gilbert Harvey (Engineering Management) (*cum laude*)  
Mnisi, Lucky Authur (Civil Engineering)  
Mohlotsane, Topollo (Electrical Engineering)  
Molemane, Carol (Civil Engineering)  
Mong, Danica (Civil Engineering) (*cum laude*)  
Mtsi, Thabani Sanda (Civil Engineering) (*cum laude*)  
Murugan, Kalayvaani (Mechanical Engineering)  
Musarurwa, Dadiso Florence (Electrical Engineering)  
Mutede, Tawanda Blessing (Civil Engineering)  
Naicker, Devon (Civil Engineering)  
Naicker, Semai (Electronic Engineering) (*cum laude*)  
Nell, Nicholas Jakobus (Electronic Engineering)  
Ngiba, Qiniso Theo-Maxwell (Chemical Engineering) (*cum laude*)  
Nkabinde, Dumisani Moses (Civil Engineering)  
Nkwocha, Chijioke Leonard (Mechanical Engineering)  
Nwagboso, Oluchi Esther (Chemical Engineering)  
Obondo, Tobias Omondi (Chemical Engineering)  
Oelofse, Andries Nicolaas (Mechanical Engineering) (*cum laude*)  
Oosthuizen, Christiaan Rudolph (Industrial Engineering) (*cum laude*)  
Oosthuizen, Lelani (Industrial Engineering) (*cum laude*)  
Oosthuysen, Christian (Civil Engineering) (*cum laude*)  
Pasipamire, Kudakwashe (Civil Engineering)  
Paskert, Lukas (Industrial Engineering)  
Pferdekamper, Karl-Heinz (Mechatronic Engineering) (*cum laude*)  
Pretorius, Dean (Electronic Engineering) (*cum laude*)  
Pretorius, Schalk (Electronic Engineering) (*cum laude*)  
Qacha, Bohlajana (Civil Engineering) (*cum laude*)  
Ramsay, Gareth Allan (Mechanical Engineering) (*cum laude*)  
Rautenbach, Eric (Industrial Engineering) (*cum laude*)

Redelinghuys, Louw Gysbert (Mechanical Engineering) (*cum laude*)  
 Rheeder, Amy (Chemical Engineering)  
 Rohrbeck, Alicia (Civil Engineering) (*cum laude*)  
 Rolfe, Devon Lee (Electronic Engineering)  
 Rust, Johannes Petrus (Civil Engineering) (*cum laude*)  
 Sander, Zara Rose (Civil Engineering)  
 Schleich, Stella Andrea Julia (Electronic Engineering) (*cum laude*)  
 Schultz, Sebastian Kent (Chemical Engineering)  
 Simonis, Judene (Industrial Engineering) (*cum laude*)  
 Smit, Johan Du Preez (Mechatronic Engineering) (*cum laude*)  
 Smith, Cameron Grant (Industrial Engineering) (*cum laude*)  
 Stander, Adam Johannes (Chemical Engineering) (*cum laude*)  
 Stap, Tyron Ian (Civil Engineering)  
 Stergianos, Theo John (Civil Engineering)  
 Strydom, Philippus Theunis (Electronic Engineering)  
 Sukhnandan, Jurad (Civil Engineering)  
 Trankle, Nicholas Albert (Industrial Engineering) (*cum laude*)  
 Tutt, Nicholas Jordan (Mechanical Engineering)  
 Van Aswegen, Ben Collett (Electrical Engineering)  
 Van Biljoen, Morne Mark (Mechanical Engineering) (*cum laude*)  
 Van der Berg, David John (Chemical Engineering)  
 Van der Merwe, Roelof Du Toit (Chemical Engineering)  
 Van der Spuy, Herline (Civil Engineering)  
 Van der Watt, Gerdus (Civil Engineering) (*cum laude*)  
 Van der Watt, Liezl Carien (Chemical Engineering)  
 Van Dongen, Caroline Loraine Erica (Electrical Engineering)  
 Van Heerden, Ane (Industrial Engineering) (*cum laude*)  
 Van Niekerk, Chris (Industrial Engineering) (*cum laude*)  
 Van Niekerk, Tyron (Mechanical Engineering)  
 Van Rooyen, Juanita Claudia (Engineering Management) (*cum laude*)  
 Van Schalkwyk, Ané (Industrial Engineering) (*cum laude*)  
 Van Tonder, Ruan Henry (Electronic Engineering) (*cum laude*)  
 Van Wageningen, Roelof Pienaar (Industrial Engineering)  
 Van Zyl, Francois Johan (Industrial Engineering) (*cum laude*)  
 Waller, Robert James (Electronic Engineering)  
 Wasserman, Alexander (Mechatronic Engineering)  
 Waters, Daniel Terry (Mechanical Engineering)  
 Wekenborg, Cristine Leonie (Civil Engineering) (*cum laude*)  
 Wentzel, Louis Frans Jacobus (Chemical Engineering) (*cum laude*)  
 Whitehead, Marisse Anchen (Civil Engineering)  
 Wolmarans, Jacques (Electronic Engineering) (*cum laude*)  
 Xavier, Ria Mary Ann (Electrical Engineering) (*cum laude*)

### **Nagraadse Diploma in die Ingenieurswese Postgraduate Diploma in Engineering**

Alves, Sergio David Calaca  
 Guse, Wian (*cum laude*)  
 Hendriks, Johannes Jurgens (*cum laude*)  
 Herbert, David Mark  
 Mateyisi, Lemohang  
 Moolman, Adriaan Joubert  
 Ndapona, Izaias Lot  
 Ntimane, Lorence Mngoni  
 Simali, Thembiso Charlotte  
 Swart, William James

### **Baccalaureus in die Ingenieurswese Bachelor of Engineering**

Africa, Zaid Seth Mason (Civil)  
 Arries, Jared Tyrell (Civil)  
 Bakker, Hans-Peter (Mechanical)  
 Basson, Albertus Johannes (Industrial)  
 Bester, Adrian Le Seur (Mechanical)  
 Bhawan, Priyan (Mechanical)

Bhayat, Moegamat Tashriq (Civil)  
 Blignaut, Henri (Civil)  
 Blom, Heinrich Tobias (Electrical and Electronic)  
 Botha, Dewald Neil (Mechanical)  
 Bowmaker, Alan Philip Macgowan (Civil)  
 Britz, Ryan Lind (Electrical and Electronic)  
 Buys, Matthew (Electrical and Electronic)  
 Chibage, Emmanuel Tinotenda (Civil)  
 Crous, Ludwig Ankiewicz (Mechanical)  
 Daniels, Alain David (Chemical)  
 Davies, Anna Penelope (Electrical and Electronic)  
 De Waal, Andri (Mechatronics)  
 Di Leva, Jason Antonio (Electrical and Electronic)  
 Dicey, Andrew Gordon Peter (Industrial)  
 Du Plooy, Pauli (Mechanical)  
 Dyani, Bulumko Phumelela (Civil)  
 Frost, Megan (Electrical and Electronic)  
 Galloway, Ryan Matthew (Mechanical)  
 Gouws, Jean-Jacques (Electrical and Electronic)  
 Greyvenstein, Frederik Willem (Mechatronics)  
 Grobbelaar, Hendrik Jacobus (Civil)  
 Hawkins, Thomas (Industrial)  
 Hendricks, Lee Jarod (Civil)  
 Henri, Paul Caleb (Mechatronics)  
 Heynes, Callen Foster (Civil)  
 Hoffman, Ankia (Industrial)  
 James, George Louis (Civil)  
 Jansen Van Rensburg, Johannes (Civil)  
 Joerning, Andrew (Industrial)  
 Johnston, Henry Bruce Ian (Mechatronics)  
 Jolly, Christian Nicholas (Mechanical)  
 Kruger, Ivan (Mechanical)  
 Le Roux, Michael John (Civil)  
 Lekholoane, Rorisang Raymond (Mechatronics)  
 Luyt, Jarryd (Industrial)  
 Mabitsele, Lebogang (Industrial)  
 Mahange, Xintomane Kathleen (Electrical and Electronic)  
 Malemane, Tsepile Marian (Electrical and Electronic)  
 Malherbe, Stefanus Gideon (Electrical and Electronic)  
 Mampama, Richard Leseja (Chemical)  
 Maree, Maryn (Industrial)  
 McKernan, Timothy Paul (Industrial)  
 Meshilinie, Leland Chad (Chemical)  
 Mfana, Zona (Mechanical)  
 Mintoor, Ishaq (Electrical and Electronic)  
 Mogase, Thato Karabo (Civil)  
 Mohlaba, Mjekejwa Darshan (Mechanical)  
 Moopen, Sorvanya (Industrial)  
 Mouton, Arno (Civil)  
 Moyo, Nokuthaba Thelma (Mechanical)  
 Mudau, Thama Gerald (Electrical and Electronic)  
 Nel, Danielle (Chemical)  
 Nhlaluko, Baloyi Victhel (Civil)  
 Nyamaka, Panashe Raphael (Chemical)  
 Otter, Matthew Alexander (Civil)  
 Pitjo, Nkopodi Isaac (Electrical and Electronic)  
 Potgieter, Carl Jacobus (Civil)  
 Quarmbay, James Andrew (Mechatronics)  
 Randeree, Muhammad Ibraheem (Mechanical)  
 Reddy, Ranen (Mechanical)  
 Rohde, Gustav Michiel (Civil)  
 Roux, Dirk (Industrial)  
 Scheepers, Dehan Coenraad (Industrial)  
 Schwabe, Anthony Maximillian (Mechanical)  
 Scorgie, Riaan James (Civil)  
 Singh, Vrishti (Mechatronics)  
 Slabbert, Matthew Eldon Barry (Mechatronics)  
 Strauss, Maria Rene (Industrial)  
 Strydom, Pieter Jacobus (Mechanical)  
 Swanepoel, Michaela Gabriella (Industrial)



Thielen, Jochanan (Mechanical)  
Van As, Dante Myburgh (Civil)  
Van Coller, Christiaan Lodewyk Wentzel (Industrial)  
Van der Merwe, Arno (Civil)  
Van der Merwe, Ruben (Mechanical)  
Van Eck, Hendrik Johannes (Civil)  
Van Elst, Luke Hendricus Petrus (Mechatronics)  
Van Heerden, Liaan (Electrical and Electronic)  
Van Staden, Lawrence John (Electrical and Electronic)  
Van Wyk, Janie (Industrial)  
Van Wyk, Ryno (Civil)  
Vermaak, Bernard Hardy (Mechatronics)  
Vermaak, Monique (Civil)  
Winn, Wesley Stuart (Civil)  
Winter, Erik Thomas (Civil)  
Yates, Ryan Arthur (Civil)

## Kanselierstoekenning | Chancellor's Award

### FAKULTEIT INGENIEURSWESE FACULTY OF ENGINEERING

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#### Jan Wium

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Na 'n roemryke loopbaan in die bedryf het prof Jan Wium hom in 2003 by die Departement Siviele Ingenieurswese aangesluit. As bekleër van die leerstoel in konstruksie-ingenieurswese en bestuur, bied hy jaarliks die program in konstruksiebestuur vir toekomstige leiers van die boubedryf aan, en het hy al as studieleier vir 80 nagraadse studente opgetree en vele artikels in impakryke vaktydskrifte gepubliseer. Sy insig en kalmte het hom 'n gewaardeerde voormalige voorsitter van die Departement Siviele Ingenieurswese en lid van die Sentrale Dissiplinêre Komitee van die Universiteit Stellenbosch gemaak. Hy is 'n gerespekteerde kollega met 'n beduidende en blywende impak op die Fakulteit Ingenieurswese en die siviele ingenieursberoep.

After an illustrious career in industry, Prof Jan Wium joined the Department of Civil Engineering in 2003. As incumbent of the chair in construction engineering and management, he presents the annual construction management programme to future leaders of the construction industry, and has graduated 80 postgraduate students and published multiple articles in high-impact journals. His insight and calm demeanour made him a valued former chairperson of the Department of Civil Engineering and member of the Central Disciplinary Committee of Stellenbosch University. He is a respected colleague who has made a significant and lasting impact on the Faculty of Engineering and the civil engineering profession.





**Fakulteit Faculty**

Natuurwetenskappe

Science

**6 April 2022 - 09:00**

**6 April 2022 - 09:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

*Staan asseblief*

1. Akademiese prosesie kom die saal binne.
2. Speel van die Nasionale Lied.
3. Formele konstituering deur die Kanselier.
4. Verwelkoming deur die Kanselier.
5. Voorstelling van kandidate wat kwalifikasies ontvang deur die dekaan van die fakulteit en toekenning van kwalifikasies deur die Kanselier.
6. Sluiting deur die Kanselier.
7. Akademiese prosesie verlaat die verhoog.

## Programme

*Please stand*

*Please stand*

*Please sit*

*Please stand*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Chancellor.
4. Welcome by the Chancellor.
5. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Chancellor.
6. Closing by the Chancellor.
7. The academic procession leaves the stage.

### DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY

**AKERELE**, Omolara (Chemistry)

#### Computational and experimental investigation of factors affecting the quality of multi-component crystals

Growing good-quality crystals is vital for crystal structure analysis and for many applications; however, there has been little research on the role that the nature of the chemical species being crystallised plays in this process. Common wisdom that ionic components produce better crystals than neutral constituents was found to be untrue for a series of substituted benzoic acid and pyridine compounds that formed either salts or cocrystals. Instead, a variety of factors affected the crystal quality, including the formation of intermolecular interactions with the surrounding molecules, where the parameters differed for salts and co-crystals.

*Supervisor:* Prof C Esterhuysen

*Co-supervisor:* Prof DA Haynes

**AZAM**, James Mba (Applied Mathematics)

#### Modelling outbreak response intervention strategies for decision making

A systematic review of the outbreak response modelling literature focused on vaccine-preventable diseases of humans found that the composition of teams that conducted the work (academic, non-academic or mixed) affects the nature of the modelling conducted. A combined operational-epidemiological model of measles outbreak response vaccination in hard-to-reach populations showed that the use of the measles vaccine outside the cold chain could decrease response time and substantially reduce the number of cases. Strategies were identified to reduce the impact of new variants on case numbers and the size of the epidemic peak, taking into account the level of risk tolerated by decision-makers.

*Supervisor:* Prof JRC Pulliam

*Co-supervisor:* Prof M Ferrari

**BEZUIDENHOUT**, Jandr  Andries (Physiological Sciences)

#### Hypercoagulation and the structural properties of plasma proteins in Rheumatoid Arthritis

The poorly understood mechanisms responsible for the adverse risk of thrombosis-related complications in individuals with rheumatoid arthritis were considered with a specific focus on autoimmunity-related influences. Analyses of haemostatic function, vascular inflammatory profile, fibrin clot structure, posttranslational modification, protein secondary structure and fibrin aggregation properties were performed to elucidate whether any adverse alterations existed in rheumatoid arthritis patients compared to healthy counterparts. These investigations revealed that fibrin deposition and biomechanical properties differ from what is typically expected within the context of inflammatory disease, where hyperactivated coagulation is offset by compromised clot stability and therefore presents a serious risk for thromboembolism.

*Supervisor:* Prof E Pretorius

**BOOYSEN**, Elzaan (Microbiology)

#### Profiling of the secondary metabolites produced by *Xenorhabdus khoisanae* and characterisation of two novel antilisterial peptides, xenopep and rhabdin

*Xenorhabdus khoisanae* J194, mutually associated with the nematode *Steinernema jeffreyense*, produced non-ribosomal PAX (peptide-antimicrobial-*Xenorhabdus*) peptides xenocoumacins and xenoamicins. Two novel non-ribosomal peptides were identified and named xenopep and rhabdin. Xenopep has a narrow spectrum of activity and inhibited the growth of *Listeria monocytogenes* and *Staphylococcus epidermidis*. Rhabdin is active against a broad range of pathogens. The two peptides contain non-proteogenic amino acids, fatty acid and polyketide chains, rendering them resistant to proteinases. They share similar amphipathic characteristics and form pores in the cell membrane of *L. monocytogenes* within minutes. These peptides may be developed into new-generation antibiotics. Methods to maximise production were developed.

*Supervisor:* Prof LMT Dicks

*Co-supervisor:* Prof M Rautenbach

**CZACHUR**, Molly Victoria (Zoology)

#### Using environmental DNA metabarcoding to reveal fish biodiversity in marine ecosystems of South Africa

Environmental DNA is 'free' DNA shed by organisms into their surroundings, providing a snapshot of the diversity of species in an area. Utilising next-generation sequencing technology and an eDNA metabarcoding approach, it was possible to characterise the vast majority of coastal fish species in South Africa. Fish communities differed between habitat types, with more fish species detected in sub-tropical and tropical areas compared to cool-temperate regions, reflecting known patterns of fish distributions. Environmental DNA approaches have the power to revolutionise biodiversity monitoring, crucial to detecting impacts driven by climate change and anthropogenic pressures in the dynamic South African coastal ecosystem.

*Supervisor:* Prof S von der Heyden

*Co-supervisors:* Prof S Creer, Dr M Seymour



**DREYER**, Rudolf Petrus Gerhardus (Polymer Science)

#### **RAFT Polymerization as a Scaffold for the Synthesis of SNAP-tag Labels**

Precision medicine is strongly centred around the utilisation of cell membrane-bound epitopes that can be selectively addressed for diagnostic and therapeutic purposes. To direct relevant compounds to a specific location, SNAP-tag technology is increasingly used for the synthesis of antibody conjugates. The benzylguanine moiety that is essential for SNAP-tag was introduced in a RAFT agent that was subsequently used for the synthesis of benzylguanine-labelled polymers. Those polymers were successfully conjugated with a SNAP-tag fusion protein as proven by SDS-PAGE with fluorescence detection. The insights gained will expand the utilisation of SNAP-tag technology.

*Supervisor:* Prof L Klumperman

*Co-supervisor:* Dr R Pfkwa

**DU PLESSIS**, Manisha (Physiological Sciences)

#### **Molecular regulation of autophagy and metastasis in breast cancer: New insights into the role of Serum amyloid A**

Serum amyloid A (SAA) plays an important role during the initiation, progression and metastasis of various cancer types; however, the exact molecular mechanisms remain unclear. This study reports that SAA overexpression regulates signalling pathway activation, inhibits autophagy and promotes cell proliferation and metastasis in breast cancer cells, while the systemic knock-out of SAA1/2 is characterised by elevated tumour autophagy, increased tumour cell survival and inhibition of metastasis. Furthermore, SAA has cell-type specific effects when comparing non-malignant and cancer cells. This study contributes significantly to a better understanding of the role of SAA in breast cancer.

*Supervisor:* Prof A-M Engelbrecht

*Co-supervisor:* Prof WJM de Villiers

**FOURIE**, Carla (Physiological Sciences)

#### **The role of serum amyloid A in NLRP3 inflammasome activation in breast and colon cancer**

Serum amyloid A (SAA), an acute-phase protein, can bind to receptors on several cell types within the tumour microenvironment to activate the NLRP3 inflammasome, which stimulates the production of proinflammatory cytokines and promotes tumourigenesis. Three *in vivo* mouse models were investigated. In the dextran sulphate sodium-induced colitis model, SAA functions independently of the NLRP3 inflammasome to suppress pro-inflammatory cytokine secretion by activating the mitogen-activated protein kinase, p38. However, in the colitis-associated cancer and triple negative breast cancer models, SAA promotes a pro-inflammatory environment by upregulating the secretion of interleukin-1 $\beta$  through NLRP3 inflammasome activation. The tumour-induced systemic environment therefore acts as a critical regulator of cancer progression and metastasis.

*Supervisor:* Prof A-M Engelbrecht

*Co-supervisor:* Prof WJM de Villiers

**GREEN**, Kathleen Alice (Mathematics)

#### **Computational and analytical methods for constructing a multilevel model for human glucose metabolism**

A mathematical model for glucose metabolism in humans was constructed based on a large number of clinical data sets. The model is hierarchical in nature and the strength of this was illustrated by incorporating a detailed model for plasmodium-infected red blood cells. This made it possible to simulate glucose metabolism in malaria patients and analyse the effect of the high metabolic activity of the pathogen on blood glucose homeostasis. Detailed models tend to get very complicated, and a flexible model reduction method was developed to keep models manageable, while specific drug targets can be analysed in full detail.

*Supervisor:* Prof JL Snoep

*Co-supervisor:* Prof C Hui

**HENSBURG**, Joshua Craig (Chemistry)

#### **Synthesis and characterisation of fluorinated-stabilised metal nanoparticles for evaluation in fluorinated biphasic catalysis**

Fluorinated biphasic nanosystems were designed and synthesised as an approach towards a green strategy for facile separation and reuse of active metal nanoparticle catalysts. Typically, such systems consist of organic and fluorinated layers in which the catalyst is selectively soluble in the fluorinated phase, while the reactants are preferentially soluble in the organic phase. The fluorinated-phase biphasic strategy, which was ultimately produced, combines the high efficiency and selectivity of homogeneous catalysis with the ease of separation and recyclability of heterogeneous catalysis and is therefore part of a very modern and important field of research in catalysis and separation science.

*Supervisor:* Dr R Malgas-Enus

**JACKSON**, Hayley Claire (Biochemistry)

#### **An investigation into the role of adiposity and progestins used in menopausal hormone therapy and breast cancer**

Adiposity and progestins used in menopausal hormone therapy (MHT) are independently linked to the increased incidence of breast cancer. An investigation of multiple progestins showed that progestins differentially modulated adipocyte production of steroid hormones known to influence breast cancer development and progression. Similarly, aggressive cancer characteristics were exacerbated in a breast cancer subtype-dependent manner by some, but not all, progestins in an experimental model of obesity. Improved insight into the multifaceted relationship between progestins, obesity and breast cancer was provided, which may have important implications for the choice of progestin for obese postmenopausal women using MHT.

*Supervisor:* Prof DJ Africander

*Co-supervisor:* Prof C Pheiffer

**JURISCH**, Christopher David (Chemistry)

#### **Studies towards the synthesis of the caulamidine core**

Caulamidines A and B are marine alkaloids isolated from *Caulibugula intermis* and have an unprecedented structural scaffold. These compounds have previously been shown to have low micromolar antiplasmodial activities against the malaria parasite *P. falciparum*. The first attempt to develop a synthetic route to these novel natural products was therefore undertaken after a thorough literature search of strategies towards closely related compounds. Nevertheless, none of these proved applicable and therefore several new methods were evaluated for their applicability towards solving this synthetic challenge. The results have now laid the foundation for future work and studies on this significant synthetic challenge.

*Supervisor:* Prof GE Arnott

*Co-supervisor:* Prof WAL van Otterlo

**KAMKUEMAH**, Martha Ndeyapeumagano (Mathematics)

#### **An analysis of security protocols for lightweight systems**

As the Internet of Things comes to play a dominant part in everyday life, privacy and security become central issues (e.g. who can control the activator for my garage door?). Yet the devices are of lightweight computational ability and hence the techniques developed for cryptography over the internet do not apply. The methods developed for specification and validation of software are based on the system's input/output behaviour, and security has been regarded as beyond them. This thesis studies the extent to which those methods can be complemented with epistemic logic in order to reason about such issues with particular reference to the recent standards proposed for the Internet of Things.

*Supervisor:* Prof JW Sanders

**KELLERMAN**, Leanne (Polymer Science)

#### **A reversible hydrogel for application as male contraceptive**

Hormonal methods for contraception in men turn out to be highly complicated, which is why this study focused largely on alternative approaches. Inspired by a high molar mass poly(styrene-co-maleic acid)-based hydrogel as a vas-occlusion device, a reversibly crosslinkable hydrogel was developed. The base materials are of relatively low molar mass and the reversibility of the hydrogel is afforded by an exogenous biocompatible compound that irreversibly breaks the crosslinks to yield a relatively low-viscosity polymer solution. Initial tests showed that the two-component system gels within tens of seconds, whereas the redissolution takes place over a few minutes.

*Supervisor:* Prof L Klumperman

*Co-supervisor:* Dr R Pfukwa

**LAGAT**, Vitalis Kimutai (Mathematics)

#### **Modelling multi-species co-occurrence patterns and processes**

The structure of ecological communities is determined by the interplay among a range of processes. Using species-by-site matrices, null models that are based on permutations under constraints have been widely used in the field. This study proposes a multi-species co-occurrence index and identified nine archetypes of species co-occurrence. A statistical model, namely the generalised B-spline modelling, was developed that can use trait variations among species as a niche-based force and encounter rate as a neutral force to explain the latent interaction strength structure of ecological communities.

*Supervisor:* Prof C Hui

*Co-supervisor:* Dr G Latombe

**MARTIN**, Nicole (Zoology)

#### **Understanding the implications of predicted changes in temperature and pH for the predatory whelk *Trochias cingulata***

Ocean acidification and changing temperatures are two outcomes of climate change in marine systems, but the way in which these changes affect marine organisms along the South African coast is poorly understood. In laboratory experiments, the predatory gastropod *Trochias cingulata* was affected by both these environmental changes. Survival was reduced under warming, while shells become more elongated under cooling and weaker under acidification. However, acidification did not narrow thermal tolerance, limit the whelk's acclimation ability or alter prey choice. This resilience may be imparted by exposure to naturally occurring episodic acidification events with the whelk's distribution range.

*Supervisor:* Prof TB Robinson-Smythe

*Co-supervisor:* Prof S Clusella-Trullas

**MATTHEWS**, Megan Esme (Polymer Science)

#### **Solid state interactions of materials: Applications based solid state NMR**

Most analytical techniques that probe structure-property relationships in materials depend on the dissolution of materials before analyses. The ability to probe morphology changes and molecular interactions in the solid state is preferable, as materials are generally used in the solid state and undergo changes due to external influences. The only way to probe both morphology and molecular interactions in the solid state is by solid-state NMR spectroscopy. Three industrially relevant scenarios were investigated. It was shown that a variety of solid-state NMR methodologies could advance the understanding of molecular events in materials during manufacture and use.

*Supervisor:* Prof AJ van Reenen



**OLLEWAGEN**, Tracey (Physiological Sciences)

**Intercellular communication between macrophages, myoblasts and fibroblasts in the context of rheumatoid arthritis-associated skeletal muscle wasting**

In the context of rheumatoid arthritis muscle wasting, a rodent model of collagen-induced arthritis was employed to correlate the extent of muscle wasting, fibre type and redox status in different muscle groups. Inflammatory dysregulation, muscle regenerative capacity and extracellular matrix deposition and the relative abundance of major cellular contributors (macrophages, myoblasts and fibroblasts) were determined in the muscle most affected by induced arthritis. A novel human triple cell co-culture model incorporating exposure to patient serum (simulating arthritis-associated systemic dysregulation) was consequently developed. The model accurately reflects the tissue profile of rheumatoid arthritis and beneficial cellular responses to potential treatment.

*Supervisor:* Prof C Smith

*Co-supervisor:* Prof KH Myburgh

**RANAIVOMANANA**, Valimbavaka Hosana (Mathematics)

**Investigations on the Wigner derivative and on an integral formula for the quantum  $\hbar$  symbols**

Spherical trigonometry and quantum topology are active areas of interest in mathematics. Two main results were obtained. Firstly, the partial derivative of edge length with respect to opposite dihedral angle (all other dihedral angles remaining fixed) was computed for a spherical tetrahedron, and was shown to be equal to the partial derivative of dihedral angle with respect to opposite edge length (all other edge lengths remaining fixed). Secondly, the interior term in the stationary phase approximation to a certain integral was computed, and shown to closely match a corresponding term in the known asymptotics of the quantum  $\hbar$  symbols.

*Supervisor:* Dr B Bartlett

**SIBANDA**, Ndumiso (Polymer Science)

**Sustainable functional materials from lignin: oxidative polymerisation, monomer synthesis and polymerisation**

Lignin, representing up to 30% of the lignocellulose biomass, is an unexploited treasure, at least from a chemical point of view. Therefore, this study focused on the conversion of lignin to high-value aromatic monomers by a novel oxidative depolymerisation protocol. An analytical approach was developed that is based on first fractionating the complex depolymerisation product according to molar mass using preparative size exclusion chromatography. The fractions were then subjected to reversed-phase liquid chromatography coupled with high-resolution multiple-stage tandem mass spectrometry. In the later part of the study, a novel fully biobased monomer was produced to synthesise functional polymers.

*Supervisor:* Prof H Pasch

*Co-supervisor:* Dr H Pfkwa

**SINGH**, Asmita (Earth Sciences)

**Understanding Southern Ocean phytoplankton ecophysiological response to iron availability**

Phytoplankton primary production and carbon export play important roles in the global carbon cycle, and therefore in CO<sub>2</sub> regulation. In the Southern Ocean, productivity is presumably constrained by the availability of light and nutrients, especially the micronutrient iron. An unexpectedly high variability in photosynthetic efficiency prevails in the presumed iron-limited Southern Ocean, indicating that the expected limitations are not uniform, not even within a single season and water mass. Hence, considering the Southern Ocean as 'iron-limited' is a too simplistic concept over space and time. Instead, photosynthetic efficiency, and ultimately atmospheric CO<sub>2</sub> uptake, is controlled by multiple biogeochemical drivers.

*Supervisor:* Dr S Fietz

*Co-supervisor:* Dr S Thomalla

**SMIT**, Marica (Polymer Science)

**Polymer-coated magnetic nanoparticles and polymer nanoparticles for the treatment of *Mycobacterium tuberculosis* (*Mtb*)**

Anti-tuberculosis drug-loaded polymer nanoparticles and polymer-coated iron oxide nanoparticles were prepared and investigated for tuberculosis treatment. Sustained drug release was achieved from the nanoparticles, which could enable less-frequent drug dosing after inhalation of the nanoparticles. Chitosandextran sulphate nanoparticles were determined to be the optimal anti-tuberculosis drug carrier via an antimicrobial study. The drug-loaded chitosan-dextran sulphate nanoparticles had improved antimicrobial activity compared to the free drugs. The polymer-coated iron oxide nanoparticles were determined to be superparamagnetic and could therefore be utilised to direct the nanoparticles via an external magnetic field, without retaining magnetisation.

*Supervisor:* Dr M Lutz

**STEYN**, Annica (Microbiology)

**Producing organic acids from pomace wastes - a biorefinery concept**

Valuable chemicals produced from petroleum could be partially replaced by plant-based biorefineries that require suitable microbial strains. Specific agricultural waste sources were mined for yeast strains with improved malic acid degradation abilities. Metabolic screenings revealed a *Saccharomyces cerevisiae* strain with higher malic acid-degrading capability, heat tolerance and biomass accumulation than previously reported for this species, suggesting potential value for industrial applications. Furthermore, recombinant expression of selected fumarase and malate transporter genes in *S. cerevisiae* strains allowed for fumaric acid production from malic acid that is abundant in grape and apple pomace, thereby showing promise for a fruit waste biorefinery concept.

*Supervisor:* Prof WH van Zyl

*Co-supervisor:* Prof M Viljoen-Bloom

**TANUI**, Hillary Kipruto (Chemistry)

**Exploration of plants' natural chelating agents for selective extraction of metal ions**

Polar crude extracts from 13 South African plants were investigated for the selective extraction of metal ions from solution. The extracts were excellent at extracting iron(III) and to a lesser extent lead(II) and copper(II). An analysis of plant phytochemicals present in the extracts indicated that the flavonoid quercetin was common in all samples. Analogous extraction experiments were carried out using pure quercetin, morin and rutin. The most common extraction profile was the same as that of quercetin, confirming that quercetin is a common phytochemical in the crudes. The first crystal structure of an iron(III)-morin complex was determined, showing its coordination.

*Supervisor:* Prof RC Luckay

*Co-supervisor:* Prof AA Hussein

**VAN HORSTEN**, Natasha René (Earth Science)

**Insights into early winter Southern Indian Ocean dissolved iron distributions and remineralisation using excess barium (GEOTRACES G1Pr07 cruise)**

This study presents the first dataset of dissolved iron and the remineralisation proxy, barium excess, in the Southern Indian Ocean during austral winter. Observations were conducted along the 30°E line to collect data on the distributions and internal cycling processes controlling the biologically crucial micronutrient iron. Remineralisation proxies, namely apparent oxygen utilisation and barium excess, were used to quantify the fluxes and stocks of remineralised iron in intermediate waters. Observations revealed a lack of a distinct seasonal cycle and that remineralisation appears to be the dominant process driving the distribution of iron in these waters during winter.

*Supervisor:* Prof AN Roychoudhury

*Co-supervisors:* Drs G Sarthou, E Bucciarelli

**VAN NIEKERK**, Annick (Chemistry)

**The synthesis and investigation of palladacycles as potential anti-cancer agents**

A suite of novel palladacycle complexes, which incorporated various hydrophilic functionalities, was synthesised and fully characterised using several analytical techniques. All the complexes were subjected to *in vitro* testing as anti-cancer agents against two breast cancer cell lines. Several of the complexes, especially the binuclear analogues, were found to show promising biological activity with the BTC2, exhibiting activity that far exceeds that of the well-known anticancer agent cis-platin. Investigations using DNA and protein-binding studies provided some further insight into the mode of action of the new metallodrugs.

*Supervisor:* Prof SF Mapolie

*Co-supervisor:* Dr P Chellan

**ZONYANE**, Samkele (Botany)

**Metabolomic analysis of *Lessertia frutescens* (L.) Goldblatt & J.C. Manning, syn. *Sutherlandia frutescens* (L.) R. Br populations in South Africa**

Metabolomic and pharmacological variation was correlated to the site of collection of wild plants of *Lessertia frutescens*, a popular South African medicinal plant that is known as 'cancer bush'. These phytochemical differences may be associated with genetic population structure. The selection of chemotypes for the manufacture of highly effective phytomedicines needs to take into consideration inherent metabolomic differences that affect bioactivity. Cytotoxicity profiles of cancer bush extracts highlighted the importance of establishing protocols for the quality assurance and standardisation of botanical remedies. The new knowledge generated further validated claims linked to the use of *L. frutescens* as a traditional medicine.

*Supervisor:* Prof NP Makunga



# Fakulteit Natuurwetenskappe | Faculty of Science

## ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

### Magister in die Natuurwetenskappe Master of Science

Adams, Tristan (Botany) (*cum laude*)  
Becker, Adolf Burger (Computer Science)  
Beste, Siann (Physics) (*cum laude*)  
Bhana, Zoë Tyler (Microbiology) (*cum laude*)  
Borstlap, Cornelius Johannes (Microbiology) (*cum laude*)  
Burger, Christiaan Neil (Computer Science) (*cum laude*)  
Cairns, Megan Louise (Physiological Sciences) (*cum laude*)  
Crous, Willem Hendrik (Applied Mathematics) (*cum laude*)  
Crowder, James (Chemistry) (*cum laude*)  
Daumas, Tshenolo Thato Eustacia (Applied Mathematics)  
De Beer, Carla (Plant Biotechnology)  
De Bruyn, Rochelle (Plant Biotechnology) (*cum laude*)  
De Nicola, Ella Hannan Maria (Genetics)  
Dempers, Nadine (Physics) (*cum laude*)  
Dijkerman, Alexander Koeloe (Genetics) (*cum laude*)  
Du Toit, Arne (Physics)  
Dukes, Marc Daniel (Geo-informatics)  
Fagg, Courtney (Zoology) (*cum laude*)  
Fest, Helena Michaela (Earth Sciences) (*cum laude*)  
Fourie, Samantha-Kerry (Applied Mathematics)  
Frantz, Tagwin Claire (Biochemistry)  
Gcakasi, Monis Noliitha (Earth Sciences)  
Gibbs, Richard Peter Gordon (Mathematics) (*cum laude*)  
Gibson, Hylton (Biochemistry)  
Gouws, Christo (Physics)  
Habeck, Manfred (Computer Science) (*cum laude*)  
Heathcote, Nicola (Physiological Sciences) (*cum laude*)  
Hugo, Paul Abraham (Mathematics) (*cum laude*)  
Jackson, Megan Jane (Botany) (*cum laude*)  
Jacobs, Desren Brando (Plant Biotechnology)  
Janse van Vuuren, Melani (Biochemistry) (*cum laude*)  
Jansen van Rensburg, Thomas William (Plant Biotechnology)  
Klinck, Johan (Physiological Sciences)  
Koech, Kiprono Elijah (Applied Mathematics)  
Le Roux, Wilhelm Heinrich (Chemistry) (*cum laude*)  
Maboeei, Palisa Mbalu (Genetics) (*cum laude*)  
Mahanyapane, Motlatsi Vincent (Physics)  
Malan, Amore (Zoology) (*cum laude*)  
Maluleke, Nhlngano Dale (Mathematical Science)  
Minnie, Savannah Loren (Biochemistry) (*cum laude*)  
Motimele, Kanting Evidence (Mathematical Science)  
Murray, Shona Megan (Biochemistry) (*cum laude*)  
Nell, Eugene Hermanus Jacobus (Chemistry)  
Neocosmos, Kibidi Alexander David (Applied Mathematics)  
Ntwali N'Konzi, Joel-Pascal (Mathematical Science) (*cum laude*)  
Patel, Vishaal Bandishkumar (Biochemistry)  
Peta, Samuel Tebogo Posie (Zoology) (*cum laude*)  
Rossouw, Christoffel Jacobus (Computer Science) (*cum laude*)  
Schall, Philip Alois (Applied Mathematics) (*cum laude*)  
Schuin, Janine (Microbiology) (*cum laude*)  
Simons, Mishkah (Biochemistry) (*cum laude*)  
Skosana, Unathi (Physics) (*cum laude*)  
Smuts, Ivy Elizabeth (Microbiology)  
Strydom, Marisa (Chemistry)  
Tshibalanganda, Muofhe (Earth Sciences)  
Van Breda, Isabella Karin (Earth Sciences)  
Van Niekerk, Ryno (Polymer Science) (*cum laude*)  
Van Rooyen, Jacobus Cornelius (Chemistry)

Werle, Mariana (Earth Sciences) (*cum laude*)  
Ye, Jiajia (Chemistry) (*cum laude*)  
Yuill, Jessie Joanne Margeret (Zoology) (*cum laude*)

### Honneurs-Baccalaureus in die Natuurwetenskappe Bachelor of Science Honours

Abrahams, Ilhaam (Polymer Science)  
Adendorff, MJ (Computer Science)  
Berndt, David (Earth Sciences)  
De Bruin, Travis (Computer Science)  
Jones, Cameron (Polymer Science)  
Louw, Liam (Computer Science)  
Malan, Lisa (Computer Science)  
Mokgwebo, Mashilo Ben (Earth Sciences)  
Nortje, Cornelius Johannes (Applied Mathematics)  
Van Renen, Hugo-Ben (Polymer Science)

### Baccalaureus in die Natuurwetenskappe Bachelor of Science

Abrahams, Jody Anthony  
Adriaanse, Janique Roché  
Akinboade, Jennifer  
Anastassiou, Alkiviadis  
Annandale, Bailey Josh  
Basson, Catherine Helen  
Basson, Kristen  
Beukes, Anorine  
Beyers, Louise  
Blight, Lauren Shirley  
Bongo, Thulisa Sipehelele  
Botes, Hendrika Susanna  
Botha, Johane  
Boting, Samantha Kerryn  
Brand, Kristopher Thomas  
Brand, Willem Andries  
Breeds, Shannon Bridget  
Brent, Courtney Ann  
Buscop, René  
Buys, Abigail  
Castle, Matthew Stephen  
Clarke, Calvin  
Cleophas, Galin  
Clinton, Tiffany Adelia  
Coetzee, Wian  
Coleman, Sasha Leigh  
Collins, Megan  
Cowley, Michael Lundin  
Crotz, Govan Stephen  
Cullinan, Amy Jennifer Westphal  
Cupido, Shannen  
Cuyler, Nina  
Darkoh, Francisca  
Day, Jason Charles  
De Lorme, Nicole Hannah  
De Wet, Michail Leon  
Drotschie, Anais  
Du Preez, Hulmari  
Du Toit, Kirsten Monét  
Du Toit, Madelaine Amore  
Duthie, Donay Faith  
Edmunds, Rebecca Helen  
Eksteen, Anke



Essop Ahmed, Farhaan  
Falakahla, Avile Avuyisene  
Fawcett, Hayley  
Fortuin, Lauren Lesley  
Fumbalele, Kwanele  
Galant, Imrah  
Goliath, Estevohn Caden  
Goosen, Nico Christiaan  
Grobbelaar, Marquard Carl  
Grobler, Anjè-Lorè  
Groenewald, Sanmari  
Guastella, George Tyrannus Louis  
Hannah, Chantelle Anne  
Hicks, Megan Elizabeth  
Hingle, John Stephen  
Hoffman, Jané  
Holz, Jeani (*cum laude*)  
Hough, Renee Anne  
Ismail, Naadir  
Jacobs, Zoë Leigh  
Jansen Van Vuuren, John  
Jones, Gareth Martin  
Johnson, Erin Sandy  
Kennard, Dominique  
Khumalo, Ismail  
Kleynhans, Sarah  
Kobokana, Viwe  
Kraukamp, Logan  
Kruger, Kian  
Kruger, Tjaart  
Krynauw, Moné  
Kunene, Khwezi Iman  
Labuschagne, Jeannette  
Labuschagne, Marlianca  
Laher, Ni-Shaat  
Lakay, Fatimah  
Leatherby, Ryan  
Ledingham, Hannah  
Losper, Kaylee Chantel  
Louw, Stephanie René  
Louw, Zuhancke  
Maartens, Shane  
Madzivane, Hlanganyeti  
Mahlangu, Landiwe  
Makhafola, Jeremia Tshepho  
Malherbe, Stephanus Jacobus  
Manhema, Remember  
Marais, Phillip  
Mbala, Amanda  
Mbatha, Katlego  
Mc Donald, Chloe Helen  
McCallum, Paige  
Meadows, Shanae  
Meyer, Werner  
Mieny, Melinda  
Mkhize, Ntando Mamayi  
Mokhorro, Moabi Gabriel  
Moswane, Mokwale  
Mouton, Alexander  
Mouton, Marcelle  
Moyo, Nonhlanhla  
Mpinga, Herman Mpoyi  
Mulder, Sabrina  
Mupaya, Victoria Nyasha  
Myburgh, Harry  
Nagessur, Sajana  
Naicker, Dierdre  
Narain, Adam  
Natha, Mohammed Ameer  
Naude, Lucca  
Nel, Michelle Louise  
Newman, Chrystal Juliette

Ngwenya, Thomas  
Nkasa, Atha  
Nkentsha, Zenande  
Ntuli, Lizzy  
Nyoni, Mawande Junior  
O'Meara, Mika Isabella Grace  
Odhav, Kiara  
Oosthuizen, Meghan  
Paderes, Tylo  
Padiachy, Tiffany Jessica  
Pakisi, Olwethu  
Parker, Rachel Megan  
Parton, Wardah  
Pick, Dean-Kirk  
Pickering, Catherine Ruth  
Pieterse, Mariska Lydia  
Pillay, Verisha Kimeara  
Pitswane, Emmanuel  
Plaatjies, Rebecca Chelsea  
Prins, Nell  
Radebe, Zamahlubi Senamile  
Rebelo, Ashley Bronwyn  
Reid, Jason Leslie  
Reid, Nikita  
Rhoda, Fatimah  
Riley, Jade India  
Rodrigues, Guilhermina  
Romani, Anzelle  
Romer, Michaela Christina  
Rothman, Megan Jade  
Saayman, Jute Jireh  
Salasa, Ganeefah  
Samina, Raquel (*cum laude*)  
Samsodien, Tauhira  
Schlechter, Lara  
Schneider, Dominique Isabella  
Schreuder, Nicola  
Shears, Ashleigh  
Snyman, Cassandra Elaine  
Southway, Stephen Odhiambo  
Steenkamp, Riandri  
Steyn, Gina-Mari  
Storm, Maruzahne  
Swanepoel, Simone  
Swartz, Willem Burger  
Symons, Craig Christopher Ray  
Ter Haar, Chantel  
Tlhako, Moshate Sebatana Ramokone  
Tredoux, Braden Thomas  
Van den Bergh, Paige Hannah  
Van der Merwe, Nina Deborah  
Van Niekerk, Joné  
Van Rooyen, Marlene  
Van Tonder, Leany  
Van Wyk, Keighley Margaret  
Vermeulen, Toni-Rae  
Visser, Johannes Christiaan  
Vlok, Anna Catharina Elizabeth  
Vlok, Marichen  
Volkwyn, Teagan Claire  
Walbrugh, Shannon Casey  
Walters, Mieke  
Wentley, Garth Nicholas  
Wessels, Francél  
Wiese, Nina  
Wilken, Shané  
Williams, Anil Hugo  
Williams, Mia  
Witbooi, Catherine Patricia  
Woode-Smith, Caitlin Melissa (*cum laude*)  
Xoki, Siphosihle  
Xuba, Thandokazi







**Fakulteit Faculty**

Lettere en Sociale Wetenskappe  
(Groep 1)

Faculty of Arts and Social  
Sciences (Group 1)

**6 April 2022 - 13:00**

**6 April 2022 - 13:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

*Staan asseblief*

1. Akademiese prosesie kom die saal binne.
2. Speel van die Nasionale Lied.
3. Formele konstituering deur die Visekanselier.
4. Verwelkoming deur die Visekanselier.
5. Voorstelling van kandidate wat kwalifikasies ontvang deur die dekaan van die fakulteit en toekenning van kwalifikasies deur die Visekanselier.
6. Sluiting deur die Visekanselier.
7. Akademiese prosesie verlaat die verhoog.

## Programme

*Please stand*

*Please stand*

*Please sit*

*Please stand*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Vice-Chancellor.
4. Welcome by the Vice-Chancellor.
5. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Vice-Chancellor.
6. Closing by the Vice-Chancellor.
7. The academic procession leaves the stage.

# Fakulteit Lettere en Sosiale Wetenskappe (Groep 1) Faculty of Arts and Social Sciences (Group 1)

## DOKTORALE KWALIFIKASIES | DOCTORAL QUALIFICATIONS

### DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY

**GWERU**, Benjamin (Sociology)

**Ageing, Gender and Class: Differences in experiences and livelihood strategies of ageing populations in Harare, Zimbabwe**

This study explored experiences and livelihood strategies of ageing women and men in Zimbabwe, raising questions about what constitutes the category ageing. It engaged with the life histories of nine people residing in Harare, marked by different levels of affluence. The research critiques common associations made between ageing and passivity and engaged, instead, with the participants as active agents who construct the social worlds they inhabit. The participants showed eagerness for engagement with the researcher, debunking stereotypical associations of ageing people with infantilisation. Some of them, notably those who lacked social and financial support from family, were more susceptible to stigmatisation.

*Supervisor:* Prof DA Francis

*Co-supervisor:* Prof RW Pattman

**JIMU**, Tawanda (Geography and Environmental Studies)

**Towards a conceptual framework for the analysis of governance arrangements and livelihoods of small-scale fisheries in Norton, Zimbabwe**

The small-scale fisheries (SSF) sector is an important contributor to livelihoods in Zimbabwe. However, various governance challenges have resulted in limited access for several fishing communities. This study investigated the nature of governance and power relations in SSF and their impact on fisher livelihoods. The study adopted a grounded theory approach and employed qualitative methods for data collection. The results showed that the SSF sector in Zimbabwe is governed through an overlapping hierarchical centralised system, is poorly regulated and has serious implications for livelihoods. This study contributes to ongoing debates on fisheries governance and calls for participatory approaches in SSF in Zimbabwe.

*Supervisor:* Dr S Williams

*Co-supervisor:* Dr MA Spocter

**MALOPE**, Biotumelo James (Sociology)

**Power struggles: An exploration of the contribution of renewable energy to sustainable development, decent work and the 'just transition' through a case study of wind farm development outside Loeriesfontein, Northern Cape province (2011–2020)**

This innovative study on the contribution of two wind farms outside the small Karoo town of Loeriesfontein to local sustainable development and 'decent work' broadens the debate on the 'just transition' to a low-carbon economy to include the marginalised communities hosting the growing number of renewable energy projects in the Northern Cape. To date, the voices of these communities have been largely excluded from the debate. The study found that the contribution of the renewable energy sector to much-needed local employment is limited, but that there is an as-yet unrealised potential in the Community Development Trusts to tackle widespread household poverty.

*Supervisor:* Prof CJ Walker

**MOUSSI**, Corinne Aurelie (Political Science)

**A Feminist Assessment of African women's experiences of wartime sexual violence before the International Criminal Court**

Armed conflicts have devastating consequences on women and there have been serious calls to afford better protection to women. Despite these calls, African women continue to be essentialised and their experiences side-lined. This study investigated the accounting of wartime experiences of African women before the International Criminal Court and assessed the gender responsiveness of the Court. The study challenged the reduction of African women's experiences to a universal story of victimhood by providing accounts of various roles/identities women take on in war, highlighting the intersection between gender, ethnicity, soldiery status and political affiliation of African women's wartime experiences.

*Supervisor:* Prof A Gouws



**NTSAMA ONANA**, Serge Sabine (Sociology)

**Socio-economic integration in the CEMAC zone: the case of Central African nationals in Douala, Cameroon**

The Regional Community of Central Africa (CEMAC) includes the violence-torn Central African Republic and its neighbour, Cameroon. Accordingly, migrants and refugees from the former have entered Cameroon and often settled in Douala, in particular. CEMAC promises regional migrants equal treatment to those of citizens. This study investigated whether these migrants received such equal treatment. The results showed that the living conditions of Central Africans and Cameroonians are similar. Complaints from Central African respondents focused on pay in workplaces and the quality of accommodation rather than access to medical and educational institutions. No evidence of xenophobia among the residents of Douala was found.

*Supervisor:* Prof SB Bekker

*Co-supervisor:* Prof P Essomba (external)

**PARKIN**, Anna Christina (Political Science)

**Parties of Pressure: Opposition parties in the dominant-party systems of Botswana and South Africa**

In southern Africa, the emergence of dominant-party systems has posed unique challenges to democratic competition and consolidation. Using a comparative case study of Botswana and South Africa, this study sought to understand how opposition parties remained relevant and the challenges they faced in dominant-party systems. Key informant interviews were conducted with prominent opposition parties. The study's significance lies in the light it sheds on the democracy-supporting functions of opposition parties. It was found that opposition parties in dominant-party systems do not fit conventional theories of political parties. Instead, they inhabit a unique, but significant, democracy-supporting space, important for unconsolidated democracies.

*Supervisor:* Prof N de Jager

**TAKUVA**, Tinashe (History)

**A Social, Environmental and Political History of Drought in Zimbabwe, c.1911 to 1922**

This study explored the socio-environmental and political history of drought in Zimbabwe in the 20th century. It traced changes and surprising continuities between the colonial to postcolonial period and the shifting strategy of the state towards its citizenry. It applied Sen's model, the entitlement approach, analysing the ability of a person to secure enough food within the political milieu. The state deployed food entitlements to either improve or exacerbate the drought survival capacity of the peasantry. In response, the peasantry negotiated their own survival through engaging private traders, sympathetic elements within a fractured state and indigenous knowledge systems to survive.

*Supervisor:* Prof S Swart

**VAN DEN BERG**, Wessel (Sociology)

**South African men's engagement in a feminist ethic of care: An extended case study**

Women in South Africa spend eight times more time on unpaid domestic and care work than men. Motivated by this unequal distribution of care, this extended case study explored how men who live in affluent neighbourhoods in Stellenbosch, South Africa, care for their young children. The study included documented social encounters, semi-structured interviews and participant observation conducted at participants' homes or during family activities. The findings include that men's care interactions can contribute to democratic citizenship and expand fathering beyond 'patriarchy', which is supported by a description of how men's care interactions expand social norms of fathering.

*Supervisor:* Dr K Fakier

*Co-supervisor:* Prof RW Pattman

**ZAGGI**, Hilary Yacham (Sociology)

**Gender, Sexuality and Schooling: An ethnography of young people in a secondary school in Kaduna State, Nigeria**

In Northern Nigeria, schools do not include gender and sexuality in the formal curriculum. However, normative presumptions that reinforce double sexual standards are constantly communicated by teachers that pathologise girls as 'pregnant in the making' and through everyday institutional practices such as 'clothes checks' for girls during assemblies. These emerged as key findings in this ethnographic study conducted with young people in a secondary school in Kaduna State, Nigeria. The study argues for the development of forms of sexuality education that engage with the significance young people attach to sexuality and gender in their lives and that encourage anti-sexist and anti-heterosexist practices.

*Supervisor:* Prof DA Francis

*Co-supervisor:* Prof RW Pattman

# Fakulteit Lettere en Sosiale Wetenskappe (Groep 1)

## Faculty of Arts and Social Sciences (Group 1)

### ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

#### Magister in die Lettere en Wysbegeerte Master of Arts

Absalom, Inge (Political Science)  
Andrews, Wendall Deudon (Geography and Environmental Studies A)  
Annandale, Maria (Clinical Psychology)  
Barnard, Daniela (History) (*cum laude*)  
Blake, Lee (Psychology) (*cum laude*)  
Bloch, Leila Ruth (History)  
Chalmers, Brittany Inge (History)  
Chauke, Lungile Tidy (Psychology)  
Cupido, Josephine Patricia (Technology in Language Learning)  
Dart, Sarah Jean (Sociology) (*cum laude*)  
De Beer, Emile (History)  
Du Toit, Tiaan (Socio-Informatics)  
Field, Courtney (Psychology) (*cum laude*)  
Gobodo, Bapiwe (Sociology)  
Hartmann, Laura Anne (Psychology)  
Hermanus, Ute Inge (Political Science)  
Jackson, Justine Leigh (Psychology)  
Jansen van Vuuren, Nicola (Psychology) (*cum laude*)  
Jivan, Dionne Chelese (Clinical Psychology)  
Karrit, Miriam (Psychology)  
Kelepile, Tshepo Kelebile (Clinical Psychology)  
Kepkey, Brigitta Blumé (Psychology)  
Köhler, Nikita Stefanie (Psychology) (*cum laude*)  
Kruger, Hermine (Psychology)  
Lakay, Justin Randall (Clinical Psychology)  
Lestrade, Louise (Psychology)  
Louw, Emile (Philosophy) (*cum laude*)  
Maketekete, Tiisetso Katleho (Psychology)  
Maree, Hester (Political Science)  
Martin, Lauren Amber (Political Science)  
Mbatyoti, Nombasa (Psychology)  
Minnaar, Natasha Daniela (Sociology)  
Minnie, Leandri (Political Science)  
Narker, Thania (Psychology)  
Nel, Jacques (Psychology)  
Pretorius, Ruan (Socio-Informatics)  
Roux, Josephine Anne (Philosophy) (*cum laude*)  
Scott, Lesley (Psychology)  
Seymour, Daniëlle Afton (Geographical Information Systems)  
Slabbert, Philip (Psychology) (*cum laude*)  
Smith, Paige Taylor (History)  
Solomons, Curtley Matthew (History)  
Styan, James-Brent (History) (*cum laude*)  
Thackwray, Savannah (Psychology)  
Van der Merwe, Kanja Susan (Translation) (*cum laude*)  
Van Niekerk, Nicolaas Jacobus (Psychology) (*cum laude*)  
Van Schoor, Jeanne (Psychology)  
Vogel, Steyn Lodewyk (Psychology)  
Vorster, Alexandra (Psychology)

#### Magister in die Wysbegeerte Master of Philosophy

Beukman, Eduard Francois (Science and Technology Studies) (*cum laude*)  
Butale, Tsogo (Monitoring and Evaluation Methods)  
Coetzer, Shanti-Gita (Information and Knowledge Management) (*cum laude*)

Conradie, Liezel (Information and Knowledge Management)  
Davids, Herschell Charles (Urban and Regional Science)  
Ebrahim, Aishah Bibi (Transdisciplinary Health and Development Studies)  
Gaffoor, Aasima (Science and Technology Studies)  
Garbini, Kirsten Jean (Information and Knowledge Management) (*cum laude*)  
Gutting, Robin (Urban and Regional Science)  
Hölscher, Beate (Science and Technology Studies) (*cum laude*)  
Lediga, Manoko Innocentia (Transdisciplinary Health and Development Studies)  
Lephaila, Mphonyana Dimpho (Science and Technology Studies)  
Mabatlle, Joseph Lekwe (Urban and Regional Science)  
Macauley, Maruchane Christal (Science and Technology Studies)  
Masiu, Paseka Nicolas (Applied Ethics)  
Mkhize, Ntombenhle Prisca (Transdisciplinary Health and Development Studies)  
Mohr, Tanya Janice (Monitoring and Evaluation Methods)  
Munkanda, Waltraud (Applied Ethics)  
Mwamba, Chanda Prudence (Transdisciplinary Health and Development Studies)  
Nene, Siboniso Wilson (Transdisciplinary Health and Development Studies)  
Ngubane, Nontobeko Precious (Transdisciplinary Health and Development Studies)  
Raal, Ludwig (Applied Ethics) (*cum laude*)  
Robberts, Frans Jackop Lourens (Transdisciplinary Health and Development Studies) (*cum laude*)  
Shingange, Jameson Given (Information and Knowledge Management)  
Sigenu, Viwe Aubrey (Science and Technology Studies)  
Waddell, Anthony Simon (Information and Knowledge Management)  
Wyngaardt, Allison Elizabeth (Science and Technology Studies)

#### Magister in Stads- en Streeksbeplanning Master of Urban and Regional Planning

Van Lille, Gerhard (Urban and Regional Planning)  
Von Solms, Wian (Urban and Regional Planning)

#### Honneurs-Baccalaureus in die Lettere en Wysbegeerte Bachelor of Arts Honours

Abelgas, Amy Lisa (Social Anthropology)  
Akiemdien, Chelsea Carole (Sociology)  
Arendse, Lucinda (Philosophy) (*cum laude*)  
Bosch, Marzele (Political Science) (*cum laude*)  
Bossau, Haylene Eugenie (Political Science) (*cum laude*)  
Brand, Oliver Drew (Philosophy) (*cum laude*)  
Burger, Carl Christiaan (History) (*cum laude*)  
Carstens, Mitchell (Sociology)  
Chikoti, Tumaini Judith (History)  
Cronje, Carla Daniela (Social Anthropology) (*cum laude*)  
Croxford, Kegan Raymond (Philosophy)  
Davids, Gita Angelica (History)  
Du Plessis, Adrienne Zendrea (Sociology)  
Du Preez, Kate Janet (Social Anthropology) (*cum laude*)

Eloff, Zahle (Philosophy) (*cum laude*)  
 February, Tamlyn Rachel (Philosophy) (*cum laude*)  
 Fife, Nabeelah (Sociology)  
 Frieslaar, Allison Julia (History)  
 Gould, Molly Green (Geography and Environmental Studies)  
 Henkeman, Carlynn Tiffany (Political Science)  
 Horsley, Cherise Mary-Ann (History)  
 James, Rafeeq (History)  
 Lloyd, Caitlin (Geography and Environmental Studies)  
 Majuru, Gamuchirai Shelter (Geography and Environmental Studies)  
 McGhee, Sasha Jill (History) (*cum laude*)  
 Mdunyelwa, Charisma Nozuko (Social Anthropology)  
 Meyers, Terri-Leigh (Sociology)  
 Nel, Evert Andre (Philosophy) (*cum laude*)  
 Newman, Tarryn (Psychology)  
 Pearson, Kelly (Philosophy) (*cum laude*)  
 Pienaar, Heide-Marie (Sociology)  
 Ruiters, Keziah Ann (Geography and Environmental Studies)  
 Sedeman, Fabio Yves (Sociology)  
 Sedick, Rayhaana (Sociology)  
 Smith, Leon (Philosophy)  
 Thomo, Lethuxolo Ndalenhle (Political Science)  
 Van Schalkwyk, Maryke (Psychology)

**Nagraadse Diploma in Ramprisikostudie en -ontwikkeling**  
**Postgraduate Diploma in Disaster Risk Studies and Development**

Dlamini, Nokuphiwa Tisitile  
 George, Dalene  
 Makhaye, Welcome Nhlanhla

**Nagraadse Diploma in Kennis- en Inligtingstelselbestuur**  
**Postgraduate Diploma in Knowledge and Information Systems Management**

Manaso, Katishi Evans

**Nagraadse Diploma in Monitering en Evaluering**  
**Postgraduate Diploma in Monitoring and Evaluation**

Baron, Justine Carla  
 Bekwa, Thukela Grace  
 Claassens, Mareli Misha  
 Dodo, Sesethu  
 Hugow, Isabella  
 Jones, Lindsey  
 Kaisi, Chipo Catherine  
 Kgaphola, Hlali Kemedi (*cum laude*)  
 Mangale, Ndivhuho  
 Maridza, Christabell  
 Masiane, Mosoeu Victor  
 Mbatha, Muziwakhe Shadrack  
 Mbongo, Laina Tulipomwene  
 Monethi, Libeo Sixtus  
 Mpala, Ceridwen Sandy  
 Nashandi, Margaret Ndapandula  
 Ndoko, Linda  
 Ngqase, Sinazo Abulele  
 Nkaota, Fumane Getrude  
 Nompekela, Zikhona  
 Parker, Yumna  
 Pule, Khumo Fortunato  
 Tesele, Patricia  
 Tshabalala, Simphiwe  
 Zimri, Irma Selina

**Baccalaureus in die Lettere en Wysbegeerte**  
**Bachelor of Arts**

Adendorff, Rudi  
 Allerton, Tayo  
 Andrews, Royston George  
 Appollis, Yannicke Shirlynn  
 Arnaud, Francois Jean Michel  
 Aryee, Mabel Abena  
 Babl, Bastienne Stefanie Margarethe  
 Bakker, Mignon  
 Bam, Siwaphiwe Vincentia  
 Bath, Megan  
 Bolnick, Gabriel  
 Bondes, Joseph  
 Botha, Jessica  
 Botma, Clara Isabelle  
 Bourne, Jason Tyler  
 Brynard, Monique  
 Burger, Tiani Christal  
 Cele, Tamia  
 Cilliers, Liesl  
 Cilliers, Rebecca Catherine (*cum laude*)  
 Cloete, Nina Leigh  
 Coetzee, Anria  
 Coleridge, Zadanian Daylin  
 Crafford, Ruben  
 Dalbock, Luke Hilton  
 Damster, Taylor  
 Darries, Lian Alridge  
 De Beer, Alexandra Jade  
 De Klerk, Angelique  
 De Villiers, Cole Warren Lee-Rick  
 De Villiers, Jana  
 De Wet, Hannah  
 Dell, Mi-Anne  
 Diedericks, Eva  
 Dimapo, Basetsana Kamogelo Tumediso  
 Dowinton, Jesse Jordan  
 Duncan, Cameron Craig  
 Ebrahim, Rameez  
 Ehret, Morgan Leigh  
 Ekkerd, Zahn  
 Ferreira, Isabella  
 Filander, Salmonique Dina  
 Firth, Jack  
 Frans, Matthew Nathan  
 Gaffoor, Farheen  
 Geertsema, Francois Eduard  
 Grand, Savannah  
 Grimsel, Sadiyah  
 Grobbelaar, Githe  
 Hablutzel, James  
 Harcombe, Kyran Georgia  
 Hearne, Joshua David  
 Heenop, Stephani  
 Hennessy, Campbell Richard  
 Henning, Lizane  
 Hoffman, Sven Tomas  
 Hughes, Alexandra Melissa  
 Husselmann, Xillian  
 Ismail, Zakiyya  
 Jabaar, Maajiedha  
 Jankovich-Besan, Alex  
 Jansen, Inge  
 Januarie, Cornelia Abigail  
 Jarvis, Erin  
 Johnson, Kiara Anne  
 Jordaan, Aneeka  
 Kawa, Khanyisa  
 Khan, Shirihan



King, Ashley Elizabeth  
Kinnear, David Lee  
Knapp, Joshua-Connor  
Knee, Olivia Magdalena  
Koenig, Kyle Thomas  
Kruger, Chloé Caitlin  
Kurten, Tayla  
Landman, Vehan Schoultz  
Langry, Firdaws  
Le Grange, Charne Joy (*cum laude*)  
Loki, Asivile  
Lotz, Jan-Willem  
Loubser, Deirdre  
Lumsden, Sarah  
Maczali, Kaira Claray  
Malan, Jonathan Johann  
Malinzi, Timothy Kawalya  
Mametja, Kgoao Kefihlile  
Mandaha, Rilinde Reginah  
Marais, Charl Marius  
Marsberg, Erin Ruth  
Mbuli, Simphiwe Mmeli Prince  
McLeod, Amber Courtney  
Mentor, Liam  
Meyer, Rush Julian  
Miller, Amy Jade  
Mkhwanazi, Awande Nothando  
Morenammele, Rorisang Kananelo  
Mostert, Cecelia  
Mostert, Christa Annette  
Mota, Nthatsi (*cum laude*)  
Mothupi, Puseletso Elaine  
Mouton, Kia  
Mtolo, Nqobile Karabo  
Müller, Samantha Anne  
Mzazi, Abenathi  
Naicker, Bavani  
Naran, Neeleshwari  
Ngumbela, Unathi  
Ntsaluba, Andisiwe  
Oellermann, Tracey  
Olifant, Siyethemba Nonjabulo  
Paulse, Muneeb  
Pellissier, Isabella  
Pepar, Austin  
Pienaar, Aneldi  
Pieterse, Jurgens Johannes  
Pillay, Jerisca  
Potter, Jack Michael  
Pretorius, Jan-Hendrik  
Quinlan, Caitlin  
Raath, Dewald  
Rabie, Sophia Maureen (*cum laude*)  
Reddy, Kreanne  
Riches, Maxine Caitlin  
Roos, Rochelle  
Rossouw, Cheslin Adrian  
Roux, Nina  
Roux, Rhoné  
Rowles, Kate Ann  
Ruimbe, Rumbidzai  
Rylands, Iman  
Sass, Athelle Zhané  
Schoeman, Genée  
Schwartz, Mieke  
Sears, Luca Rain  
September, Steve Colin  
Sesanti, Masimange  
Shapiro, Daniel  
Sinuka, Sibulele Lebo

Smith, Amber  
Smith, Jani  
Smith, Shakeena  
Snyman, Katelynn (*cum laude*)  
Snyman, Tian  
Solomon, Justin Lyle  
Stodel, Shannon  
Strydom, Lara  
Swart, Sean  
Swarts, Erin  
Teixeira, Tayla-Jade  
Terblanche, Rohniel Gustav  
Van den Berg, Michelle  
Van der Rede, Isabella Maria  
Van der Walt, Marcus Coert  
Van Kerwel, Chenell  
Van Rooyen, Rieke Sophy  
Van Schalkwyk-Ahmed, Mishka Asheeqa  
Van Zijl, Berno  
Walker, Rebecca Elizabeth  
Walters, Lauren Alicia  
Walton, Kayla Siobhan  
Weeden, Walter Thomas  
Welgemoed, Zetta  
White, Jodie Rochelle  
Whitton, Samuel Gerard  
Williams, Amina  
Williams, Celeste  
Williams, Fadeelah  
Wilson, Amy Rose  
Wolfswinkel, Merize  
Zinn, Chloé Catherine







**Fakulteit Faculty**

Lettere en Sociale Wetenskappe  
(Groep 2)

Faculty of Arts and Social  
Sciences (Group 2)

**6 April 2022 - 17:00**

**6 April 2022 - 17:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

*Staan asseblief*

1. Akademiese prosesie kom die saal binne.
2. Speel van die Nasionale Lied.
3. Formele konstituering deur die Kanselier.
4. Verwelkoming deur die Kanselier.
5. Voorstelling van die eredoktorandus en toekenning van die eregraad deur die Kanselier.
6. Voorstelling van kandidate wat kwalifikasies ontvang deur die dekaan van die fakulteit en toekenning van kwalifikasies deur die Kanselier.
7. Sluiting deur die Kanselier.
8. Akademiese prosesie verlaat die verhoog.

## Programme

*Please stand*

*Please stand*

*Please sit*

*Please stand*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Chancellor.
4. Welcome by the Chancellor.
5. Presentation of the candidate for the honorary doctorate and conferment of the degree by the Chancellor.
6. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Chancellor.
7. Closing by the Chancellor.
8. The academic procession leaves the stage.

# Eregraad | Honorary Doctorate

## FAKULTEIT LETTERE EN SOSIALE WETENSKAPPE FACULTY OF ARTS AND SOCIAL SCIENCES

Die graad Doktor in die Filosofie (DPhil), *honoris causa*, aan  
The degree Doctor of Philosophy (DPhil), *honoris causa*, to

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**Diana Ferrus**

---

*vir die gebruik van haar skryfwerk en poësie om op te voed en te bemagtig, haar toewyding aan die ontwikkeling van 'n nuwe geslag skrywers, en die benutting van haar kuns om ook aan ander 'n uitlaatklep te bied.*

Diana Ferrus is 'n gevierde Suid-Afrikaanse skrywer, digter en aktivis wie se werk allerweë vir die politieke impak daarvan erken word. Sy het op Worcester in die Wes-Kaap grootgeword en op 14-jarige ouderdom reeds oor haar persoonlike ervarings begin skryf. Sedertdien het haar werk oor rasse-, identiteits-, gender-, klas- en versoeningskwessies vele toekennings ingepalm.

Ferrus het onder andere lof ingeoes vir die gedig "I've come to take you home" wat sy geskryf het vir Sara Baartman, 'n Khoi-Khoi-vrou wat in 19de-eeuse Europa as 'n attraksie in fratsvertonings gebruik is. Die gedig is deels 'n oorwinningslied, en deels 'n veroordeling van die mishandeling wat Baartman moes verduur. Dit is voorgelees in die Franse Senaat toe lede die repatriasie van Baartman se oorskot bespreek het. Die gevolglike eenstemmige besluit om Baartman se oorskot aan Suid-Afrika terug te besorg word grootliks aan dié gedig toegeskryf. Ferrus het na Frankryk gereis en die gedig voorgedra by die formele oorhandiging van Baartman se oorskot, wat sy daarna terug huis toe vergesel het.

Boonop is sy 'n sterk kampvegter vir kreatiewe skryfwerk as 'n werktuig vir self- en sosiale ondersoek, en bied sy kreatiewe skryfsessies vir leerders en volwassenes aan om hulle aan te spoor om oor hulle verhale te skryf. Haar werk het al in verskeie bundels verskyn en van haar tekste is vir hoërskoolleerders voorgeskryf.

*for using her writing and poetry to educate and empower, displaying commitment to the development of a new generation of writers, and utilising her art to offer a tool of expression to others as well.*

Diana Ferrus is a renowned South African writer, poet and activist whose work is widely recognised for its political impact. Growing up in Worcester in the Western Cape, she started writing about her personal experiences at the age of 14. Since then, her work tackling questions of race, identity, gender, class and reconciliation has garnered many awards.

Among others, Ferrus earned acclaim for the poem "I've come to take you home" written for Sarah Baartman, a Khoikhoi woman who was exhibited as a freak show attraction in 19th-century Europe. The poem is part victory song, part condemnation of the abuse that Baartman suffered. It was read out loud at the French Senate during its discussion regarding the repatriation of Baartman's remains, and is widely believed to have inspired the subsequent unanimous vote for Baartman's remains to be returned to South Africa. Ferrus travelled to France and recited the poem at the formal handover of Baartman's remains, which she then accompanied back home.

A strong advocate of creative writing as a vehicle for personal and social interrogation, she also presents creative writing workshops for learners and adults, encouraging them to write about their stories. Her work has been published in various collections, and some of her texts have been prescribed for high-school learners.



# Fakulteit Lettere en Sosiale Wetenskappe (Groep 2) Faculty of Arts and Social Sciences (Group 2)

## DOKTORALE KWALIFIKASIES | DOCTORAL QUALIFICATIONS

### DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY

**ABIYO**, Rehema Bona (General Linguistics)

#### **Literacy practices in and out of school in multilingual Kenya: An ethnographic study**

This study investigated through an ethnographic approach the literacy practices of a community in Tana River County, Kenya. Data were collected through observations, interviews and through the creation of stories. The findings suggest that although English is the language of schooling, community practices value local languages and knowledge(s). The disconnect between school and community is argued to be responsible for a lack of parental involvement in the formal education of their children. The study proposes that the 'acts of linguistic citizenship' found outside the school setting can be used in the school to connect literacy to local practices.

*Supervisor:* Dr MCA Oostendorp

**BICHWA**, Saul Simon (African Languages)

#### **The Determiner Phrase syntax of igiHa: A generative syntax-interfaces approach**

The study examined evidence, assuming the framework of generative linguistics, that igiHa, an African language spoken in Tanzania that lacks overt articles (such as 'the' and 'a' in English), projects a determiner phrase above the noun phrase in the syntactic representation of nominal phrases. The study presents arguments in support of the view that the pre-prefix in igiHa is a functional category, namely determiner, specified for the semantic features of specificity and contrastive focus. This view is evidenced in the igiHa nominal phrase where the pre-prefix occurs in the inflectional morphology of some nominal modifiers.

*Supervisor:* Prof MW Visser

**CHIRWA KAJOMBO**, Marion Ndawaka (General Linguistics)

#### **Communicating taboo topics in gynaecological consultations in Malawi: A Sociolinguistic study on effective strategies used in a conservative culture**

In Malawian culture, discussing sex, sexuality, reproduction and pregnancy is taboo, especially outside of close personal relationships and/or in gender-discordant contexts. When these topics are discussed, indirectness is culturally required. This taboo also applies during gynaecological consultations, when clarity of communication is needed for accurate diagnosis and effective treatment. This first study of its kind, which made use of innovative data collection techniques, investigated the strategies male gynaecologists and their patients use when discussing matters pertaining to sexual and reproductive health. Teaching medical students to employ the sociolinguistic strategies uncovered by this study can improve gynaecological training in Malawi.

*Supervisor:* Dr LD Mongie

*Co-supervisor:* Prof F Southwood

**INYANG**, Idaresit (Drama and Theatre Studies)

#### **Applying indigenous knowledge resources in children's play-crafting in Southern Nigeria: Practice-led research using Ibibio folk narratives**

This study investigated play-crafting as a form of educational drama to renew the interest of Ibibio children in their indigenous knowledge resources. An educational project was carried out with 50 Ibibio children, aged 9 to 12 years, from selected primary schools in Akwa Ibom State, Nigeria. The practice-led fieldwork followed the combined approach by incorporating storytelling, improvisation and role-playing as creative tools in play-crafting. Through various levels of investigation, a field experiment and extensive analysis, the study established that the application of indigenous resources can transform the learning experience for children, with benefits to child and society.

*Supervisor:* Dr MH Pretorius

*Co-supervisor:* Prof MS Kruger

**ISMAILA**, Margaret (Drama and Theatre Studies)

#### **Indigenous performance and Modernity: Investigating the vitality of play and work songs of the Dagaaba community of North Western Ghana as verbal art performance**

The study investigated how modernity has influenced the vitality of play and work songs of the Dagaaba in Northwestern Ghana and how alternative platforms could be used to revitalise performances to ensure continuity of indigenous performances. Using an ethnographic approach, the study found that daily activities of the Dagaaba (farming, domestic chores, recreation, environmental rituals, ancestor veneration and rites of passage) provide some platforms for indigenous art forms. However, formal education, Christianity, technology, industrialisation and urbanisation weaken the vitality of performances. Meeting places of identifiable groups and competitions for indigenous performances were identified as alternative platforms.

*Supervisor:* Dr MH Pretorius

**KHOSA**, Priscalia (Social Work)

#### **Implementation of the Supervision Framework for the social work profession in South Africa by a designated child protection organisation**

The Supervision Framework for the social work profession seeks to conceptualise, contextualise and provide norms and standards that guide the execution of supervision in the country. However, since its inception in 2012, no study has been conducted on the outcomes of the Supervision Framework. This study generated ground-breaking empirical findings that synthesised both international and local research, a constructionist theoretical approach as well as policy and legislation on the implementation of the Supervision Framework in a specific child protection organisation. Key recommendations suggest the intensification of clinical support of frontline social workers, instead of mere neoliberal-inspired managerial supervision.

*Supervisor:* Prof LK Engelbrecht

**KWANYA**, Joseph Michael Amolo (English Studies)

### **Myth and Counterfactuality in Diasporic African Women's Novels**

This study explored how novels by diasporic African women authors rework the idea of myth in order to challenge dominant masculinist and essentialist narratives. These authors draw on traditional myths, challenge the mythologising function of nationalist histories or generate new forms of myths for the future. Drawing on counterfactual theory, the study demonstrates how the authors take facts, historical figures, known histories and myths to create versions of events that make overt the central role of women. The analysis shows that while narratives such as myth and history seem fixed and controlling, counterfactuals are valuable tools for unsettling their dominance.

*Supervisor:* Prof LA Green  
*Co-supervisor:* Dr N Sanger

**MARTIN**, Amy (Ancient Cultures)

### **Poetes on the Periphery? Revisiting the question of a female poetic tradition in Hellenistic poetry**

The study revisited the notion of a female poetic tradition in ancient Greek literature. Arguing from a gynocritic paradigm, it traced various forms of allusion in the poetry of female epigrammatists (Erinna, Moero, Anyte and Nossis) from the Hellenistic age. The study argues for the importance of the early modes of transmission (epigram books and anthologies) in establishing trajectories of allusion, both by these authors and to them. It concluded that gender did not dictate the literary ambitions of these poets, but that they competed in and influenced the public poetic tradition with their innovation and poetic acumen.

*Supervisor:* Prof PR Bosman

**MISBACH**, Abdul Waghied (English Studies)

### **Postcolonial minoritarian characters: Transformative strategies for re-mediating raced marginalisation in South African English fiction**

This creative-critical study engaged an experimental, postcolonial, social justice framework to explore transformative literary strategies for re-mediating raced and related marginalisation in examples of fiction in English. The study demonstrates how deep-rooted prejudices have sedimented among even seemingly progressive novelists, scholars and publishers. The re-imagining of influential novels such as *Disgrace* and *The Lacuna* from the perspective of minor characters disrupts received historical truths and reworks divisive cultural narratives. In adopting a minoritarian theoretical approach to fiction writing, the study used counterfactual, satirical and fabulist devices to overcome the distance between minority and dominant ideologies and to counter naturalised Orientalist and Islamophobic tendencies.

*Supervisor:* Prof SA Murray

**OGELO**, Kelvin Awino (General Linguistics)

### **Investigating evidence of linguistic relativity in Dholuo**

This study investigated the relationship between language and thought in a previously unexplored language, Dholuo. The perceptual domains of space and motion were chosen as subjects of study. A series of verbal and non-verbal experiments was implemented to elicit data on conceptualisation processes during and outside of speech production. Because multilingualism is commonplace among Dholuo speakers, the study also investigated whether proficiency with other languages (English and Swahili) modulated their conceptualisation patterns. The results showed mixed support for an influence of linguistic categories on non-verbal cognition and limited effects of second language knowledge on native language conceptualisation.

*Supervisor:* Prof ENE Bylund Spangenberg

**SASS**, Jaydey (Afrikaans en Nederlands)

### **Die ontwerp van 'n model vir 'n toepassing vir Afrikaanse uitspraak in 'n taakgebaseerde leer- en onderrigprogram The design of a model for an application for Afrikaans pronunciation in a task-based learning and teaching program.**

Hierdie studie bied 'n raamwerk vir 'n model waarvolgens 'n toepassing ontwerp kan word om studente wat Afrikaans aanleer met Afrikaanse uitspraak te help. Die uiteindelige doel van dié toepassing is om as bykomende hulpmiddel buite die klaskamer gebruik te word om studente te help om hul Afrikaanse uitspraak te verbeter. Die navorsing wat vir die studie onderneem is, is die eerste sistematiese navorsingswerk in Afrikaans wat die belangrike navorsingsterreine van Afrikaanse uitspraak, mobielgesteunde taalonderrig, voorsienbaarhede en spelifiëring koppel. Die bydrae van die studie sluit onder meer in 'n gebruikersgerigte uitspraaktoepassingsmodel wat deur alle belangstellendes gebruik kan word.

*Promotor:* Dr EM Adendorff

**SEBIDIE**, Godfrey (Social Work)

### **The challenges experienced by unemployed youth graduates in Botswana: An ecological systems perspective**

Youth unemployment, especially graduate unemployment, has become a national concern in Botswana. The study aimed at gaining an understanding of the challenges experienced by unemployed youth graduates from an ecological systems perspective. The study was qualitative in nature with explorative and descriptive elements. Data were collected from unemployed youth graduates and programme officers in the Botswana government. The findings revealed that unemployed youth graduates were experiencing challenges on all levels of the ecological perspective, accompanied by a shortage of social work services. Recommendations are that existing government policy and initiatives be evaluated to improve and support the social work response.

*Supervisor:* Prof M Strydom



**SPEMBA**, Spemba Elias (English Studies)

**Representation of Albinism and persons with Albinism in narratives from East and Southern Africa**

This multi-disciplinary, cross-cultural study examined representations of albinism and characters or subjects with albinism in a selection of literary and cultural texts. Entirely African-focused, it is the first deliberation to bring together contemporary fiction (for children and adults), auto/biographical and short documentary narratives set in, and from, East and southern Africa to explore how issues of agency are represented. The study argues that cultural texts are a crucial site where public and private agency of subjects and characters with albinism is (re)configured, various perceptions describing persons with albinism and their condition are (de)constructed and (re)conceptualised, and decisive ethical questions are raised.

*Supervisor:* Dr M Slabbert



# Fakulteit Lettere en Sosiale Wetenskappe (Groep 2)

## Faculty of Arts and Social Sciences (Group 2)

### ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

#### Magister in die Lettere en Wysbegeerte Master of Arts

Adams, Doené (General Linguistics)  
Baard, Helena (Drama and Theatre Studies) (*cum laude*)  
Biscombe, Cleo Sabrina (English Studies) (*cum laude*)  
Botma, Riette (Afrikaans and Dutch) (*cum laude*)  
Britz, Carmi (Afrikaans and Dutch) (*cum laude*)  
Butler, Emer (General Linguistics) (*cum laude*)  
Dinabantu, Keith Sindile (Journalism)  
Du Plooy, Jacobus Andrias (French) (*cum laude*)  
Götze, Ancheri (Afrikaans and Dutch) (*cum laude*)  
Human, Emrie (Afrikaans and Dutch) (*cum laude*)  
Kershaw, André James Daniel (English Studies) (*cum laude*)  
MacDonald, Bronwen Elizabeth (Ancient Cultures) (*cum laude*)  
Mkondweni, Siphwiwo (African Languages) (*cum laude*)  
Ngulu, Albertina Ndinelago Tuhumbata (African Languages) (*cum laude*)  
Njeyiyana, Susan (General Linguistics)  
Ntombela, Thandekile Gladness Roseline (African Languages)  
Nxumalo, Thandiwe Fikile (African Languages)  
Pather, Benedict Joseph (Journalism)  
Pitt, Rebecca (General Linguistics)  
Tshabalala, Tshepo Hendrick (Journalism)  
Van den Brink, Jessica Hendrika (Ancient Cultures)  
Van Eeden, Marguerite (Drama and Theatre Studies)

#### Magister in die Wysbegeerte Master of Philosophy

Zoio, Katya Izabella (Film Music)

#### Magister in Maatskaplike Werk Master of Social Work

Slazus, Almarie (Social Work) (*cum laude*)  
Wolfaardt, Katelyn Anne (Social Work) (*cum laude*)

#### Magister in die Musiek Master of Music

Kannemeyer, Christina Maria (*cum laude*)  
Levenderis, Frances Nikita Donata (*cum laude*)  
Oosthuizen, John Ernst  
Reynolds, Brent (*cum laude*)  
Tremble, Caron Lisa  
Williams, Craig Walter

#### Magister in die Lettere en Wysbegeerte in Visuele Kunste Master of Arts in Visual Arts

Bester, Lourens Petrus (*cum laude*)  
Botha, Nicla  
Deaney, Rushda  
Dennis, Terri (*cum laude*)  
Erasmus, Reino  
Gagne, Abbey  
Jordaan, Ronel  
Koopstad, Karla Abigail  
Legendyk, Mieke Legendyk (*cum laude*)  
Landsberg, Lara Daryl

Middleton, Jessica (*cum laude*)  
Naik, Ruhini (*cum laude*)  
Pashaliev, Elinza Dorothea (*cum laude*)  
Vermeulen, Pierre Carl (*cum laude*)

#### Honneurs-Baccalaureus in die Lettere en Wysbegeerte Bachelor of Arts Honours

Adams, Maryam (Journalism)  
Arries, Anneline Shannon (Translation)  
Augustyn, Ellen (Visual Studies)  
Baartman, Kesia Jo-Melia Delita (German)  
Basson, Eleonore (Afrikaans and Dutch) (*cum laude*)  
Beeslaar, Llandi (Drama and Theatre Studies) (*cum laude*)  
Beukes, Charissa (Chinese) (*cum laude*)  
Blomerus, Elrike Andrea (Translation)  
Bolarinwa, Sibulela Omotola (Journalism)  
Brand, Johan Alexander (Journalism)  
Breytenbach, Jan Andries (Visual Studies)  
Bucholz, Kirsten Lee (Journalism)  
Coetzee, Akira (Ancient Cultures) (*cum laude*)  
Croucamp, Lazelle Sara (English Studies)  
De Wet, Elmerie (Ancient Cultures)  
Du Plessis, Inge (Journalism)  
Du Plessis, Zahra (German)  
Geldenhuis, Ellen Judit (Visual Studies)  
Guerandi, Giuseppe Ronaldo (Journalism)  
Hemmonsbeey, Keanan (Journalism)  
Heron, James Cameron (Journalism)  
Ismail, Shakeelah (Visual Studies) (*cum laude*)  
Jacobs, Keisha Tamia (Visual Studies) (*cum laude*)  
Janse van Rensburg, Nicolle (Chinese)  
Jantjies, Candice Francisca (Journalism)  
Joyce, Martha Margaretha (Translation)  
Kerbelker, Tanweer (English Studies)  
Khaff, Zainab (General Linguistics) (*cum laude*)  
Kleinhans, Kyla-Ann (Translation)  
Koegeleberg, Ané (Drama and Theatre Studies)  
Krige, Wessel (Journalism)  
Lange, Emily Rebecca (German) (*cum laude*)  
Le Roux, Adele (Translation)  
Le Roux, Anje-Mari (Translation)  
Leonard, Heléne (Journalism)  
Maledo, Caitlin Matshidiso Alexandra (Journalism)  
Manyane, Kgothatso (African Languages) (*cum laude*)  
Matroos, Allison Micaela (Afrikaans and Dutch)  
Matthee, Anri (Journalism) (*cum laude*)  
Matthews, Denyse Evelyn (Translation)  
Mc Dermott, Sinead (English Studies)  
Metelerkamp, Tamsin (Journalism) (*cum laude*)  
Muller, Megan Kim (Journalism)  
Nogqala-Sonjani, Nosisana Portia (African Languages)  
Rensburg, Kyra-Kay (Journalism)  
Rossouw, Daniëlle (Translation)  
Scheepers, Jana (Journalism)  
Schoeman, Kimberley Jade (Journalism)  
Schultz, Ruan (Ancient Cultures) (*cum laude*)  
Seymour, Alistair James Seymour (Journalism)  
Snyman, Elana-Marie (Drama and Theatre Studies) (*cum laude*)  
Spingies, Nicola (Journalism)

Stewart, Marianne Francis (Journalism)  
Swart, Mareli (Translation) (*cum laude*)  
Van den Berg, Nicole Linda (English Studies)  
Van der Berg, Willow-Ruby (French) (*cum laude*)  
Van der Walt, Khenje Demeë (Chinese)  
Van Heerden, Tegan Jerrynne (Chinese)  
Van Rensburg, Ella (Translation) (*cum laude*)  
Van Rooyen, René Isabel (French)  
Van Wyk, Hercules Jacobus (Ancient Cultures)  
Van Zyl, Kristina (Visual Studies) (*cum laude*)  
Van Zyl, Lara (Journalism)  
Visagie, Carla Wena (Journalism)  
Walls, Erin Caitlin (Journalism)  
Wepener, Ilse (Ancient Cultures)  
Wilken, Anneki (Ancient Cultures) (*cum laude*)  
Wilschutt, Nazley (Translation)

### **Honneurs-Baccalaureus in die Musiek Bachelor of Music Honours**

Bothma, Tiaan Anton  
Carr, Byron  
Garcia Garcia, Claudia  
Havenga, Lara (*cum laude*)  
Jacobs, Michaela Margaret (*cum laude*)  
Meaker, Teneale  
Sparg, Joy Joanna (*cum laude*)  
Van der Walt, Alida (*cum laude*)

### **Honneurs-Baccalaureus in die Lettere en Wysbegeerte in Visuele Kunste Illustrasie Bachelor of Arts Honours in Visual Arts Illustration**

Abrahams, Mishkah Hanaa  
Antoniades, Lara Josephine  
Blaauw, Christiaan Nel  
Du Toit, Ilkhe (*cum laude*)  
Gunther, Gertruida (*cum laude*)  
Johnson, Henri Wills (*cum laude*)  
Loubser, Mieke Elizabeth (*cum laude*)  
Meyer, Bryan Jeandre  
Ngwenya, Buhlebenkosi Njabulo  
Roux, Jan-Daniel  
Van Tonder, Lara (*cum laude*)

### **Nagraadse Diploma in Musiektegnologie Postgraduate Diploma in Music Technology**

Kostanjevec, Mitja  
Rorich, Ancke Frieda

### **Baccalaureus in die Lettere en Wysbegeerte Bachelor of Arts**

Adendorff, Finn Hendriks  
Benjamin, Kelly-Ann Grace  
Daly, Emma Ann  
De Bod, Corleze  
Dippenaar, Johannes Alwyn  
Durr, Jocasta Diana Ramsden  
Freed, Hannah Marthina  
Harmse, Ilse  
Katzke, Lane (*cum laude*)  
Kennedy, Hannah  
Kleynhans, Margitte Mia  
Kulsen, Kirshni Oriël  
Lawrence, Micalëb Albanishe  
Livesey, Kayla  
Mandibatsira, Tinotenda Delphine  
Nisbet, Andoline Daniëlla Cecilia  
Pienaar, Joanrae Tecla  
Pinto, Emelaine Charlize

Rautenbach, Karin  
Richard, Annica Ann  
Rohde, Alexandra Olivia  
Roos, Cindy  
Samodien, Tawfeeq  
Shongwe, Uphakeme Zamantimande  
Souter, Rachel Beatrice  
Stevenson, Caden  
Strumphër, Simone  
Uys, Jean-Marie  
Vermeulen, Talitha  
Von Molendorff, Hillet  
Williams, Monique Emma

### **Baccalaureus in Maatskaplike Werk Bachelor of Social Work**

Arnolds, Devone Shami  
Cupido, Simtho Reid  
Hess, Abigail  
Madire, Dannyboy Matape  
Mahlikihla, Ellen Nomasiyepi  
Mourrats, Faeeka  
Namane, Tebogo  
Ncanywa, Amanda  
Ndlovu, Sindisiwe Precious  
Ngoma, Nvelo  
Paulse, Sarahnade Melissa

### **Baccalaureus in die Musiek Bachelor of Music**

Dauids, Galen Amy  
Dowlath, Milan  
Read, Jake

### **Baccalaureus in die Lettere en Wysbegeerte in Visuele Kunste**

#### **Bachelor of Arts in Visual Arts**

Engelbrecht, Vincent (Fine Arts)

### **Diploma in Praktiese Musiek Diploma in Practical Music**

Mosarwe, Tshepo

### **Hoër Sertifikaat in Musiek Higher Certificate in Music**

Dennis, Jamie-Lee Rose



## **Fakulteit**   **Faculty**

Economiese en  
Bestuurswetenskappe (Groep 1)

Economic and Management  
Sciences (Group 1)

**7 April 2022 - 09:00**

**7 April 2022 - 09:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

*Staan asseblief*

1. Akademiese prosesie kom die saal binne.
2. Speel van die Nasionale Lied.
3. Formele konstituering deur die Visekanselier.
4. Verwelkoming deur die Visekanselier.
5. Voorstelling van kandidate wat kwalifikasies ontvang deur die dekaan van die fakulteit en toekenning van kwalifikasies deur die Visekanselier.
6. Sluiting deur die Visekanselier.
7. Akademiese prosesie verlaat die verhoog.

## Programme

*Please stand*

*Please stand*

*Please sit*

*Please stand*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Vice-Chancellor.
4. Welcome by the Vice-Chancellor.
5. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Vice-Chancellor.
6. Closing by the Vice-Chancellor.
7. The academic procession leaves the stage.

# Fakulteit Ekonomiese en Bestuurswetenskappe (Groep 1) Faculty of Economic and Management Sciences (Group 1)

## DOKTORALE KWALIFIKASIES | DOCTORAL QUALIFICATIONS

### DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY

**MARSBURG**, Angela (Industrial Psychology)

#### **Development and evaluation of a longitudinal dynamic needs-action model of employee well-being: a psychological perspective**

Employee psychological well-being is fundamental to many important organisational outcomes. Drawing on self-determination and psychological ownership theory, inspired by the recent eudaimonic activity model, this study develops a dynamic needs-action model of employee well-being from a psychological perspective. The model depicts well-being as a dynamic process underpinned by the connections between interrelated variables that change over time (basic needs, motivation to engage in well-being activities, activity engagement, positive psychological outcomes, and subjective well-being). Longitudinal cross-lagged panel modelling shows that both need salience and need satisfaction, motivated behaviour as well as active participation from the individual are vital to the experience of well-being over time.

*Supervisor:* Prof G Görgens

**MBONDA TIEKWE**, Aude Inès (Statistics)

#### **A quantitative analysis of investor over- reaction and underreaction in the South African equity market: A mathematical statistical approach**

This study explores the use of two mathematical statistical models – the fuzzy C-means model and a Bayesian model – to investigate whether South African investors tend to overreact and/or underreact over time. The 100 JSE-listed shares with the largest market capitalisations for every year over the 2006–2016 period are considered. While both overreaction and underreaction are detected across the three main financial sectors, the sectors exhibit unique, erratic patterns, which suggest that the behavioural phenomena are largely unpredictable. The two techniques are tested for robustness and thoroughly documented, with the data transformations needed to perform the analyses also stipulated for future studies.

*Supervisor:* Prof WJ Conradie

*Co-supervisor:* Dr R Lötter



# Fakulteit Ekonomiese en Bestuurswetenskappe (Groep 1)

## Faculty of Economic and Management Sciences (Group 1)

### ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

#### Magister in die Handelwetenskappe Master of Commerce

Booyesen, Nicole (Industrial Psychology)  
Botes, Janice (Business Management) (*cum laude*)  
Botha, Jana-Mari (Industrial Psychology)  
Brown, Mario Jonathan (Transport Economics) (*cum laude*)  
Coetzer, Brandon Alexander (Transport Economics) (*cum laude*)  
Di Santolo, Claudia (Statistics)  
Fick, Elizabeth Adri (Taxation)  
Filter, Markus (Business Management)  
Groom, Rebecca Lynn (Logistics Management) (*cum laude*)  
Hearn, Caitlin (Industrial Psychology)  
Janse van Rensburg, Sarah Margaret (Industrial Psychology) (*cum laude*)  
Kotze, Ulrich (Statistics)  
Kriel, Rudi Deon (Transport Economics)  
Laubscher, Karla (Mathematical Statistics)  
Neethling, Chelna (Logistics Management) (*cum laude*)  
Nixon, Paul Prinn (Business Management) (*cum laude*)  
Reid, Cailin (Industrial Psychology) (*cum laude*)  
Sebitlo, Kgomotso Julian (Financial Risk Management)  
Sparks, Kim (Human Resources Management)  
Stander, Anwen (Industrial Psychology)  
Steenkamp, Cara Yvette (Financial Risk Management)  
Stemmet, Rushka (Industrial Psychology)  
Stofberg, Suzanne (Logistics Management)  
Swanepoel, Kayla (Industrial Psychology)  
Theron, Liza (Industrial Psychology) (*cum laude*)  
Wessels, Annelie (Quantitative Management)

#### Magister in die Wysbegeerte Master of Philosophy

Alobwede, Vivian Ebami (HIV/AIDS Management)  
Campson, John William (HIV/AIDS Management)  
Koneshe, Makatleho Constance (HIV/AIDS Management)  
Maki, Chumani (HIV/AIDS Management)  
Mambera, Ellen Nyaradzai (HIV/AIDS Management)  
Mazibuko, Ntombenhle Elsie (HIV/AIDS Management)  
Ndjambula-Boeren, Frieda Nangula (HIV/AIDS Management)  
Ndlovu, Nicolaide Nomzamo (HIV/AIDS Management)  
Ndlovu, Nolwazi Josephina (HIV/AIDS Management)  
Ngomane, Lindiwe Fortunate (HIV/AIDS Management)  
Nyadenga, Dorcus (HIV/AIDS Management) (*cum laude*)  
Rademeyer-Bosman, Lynette (HIV/AIDS Management)  
Strauss, Aidan Blaine (HIV/AIDS Management)  
Zondi, Ntobeko (HIV/AIDS Management)

#### Honneurs-Baccalaureus in die Handelwetenskappe Bachelor of Commerce Honours

Albertyn, Carla (Mathematical Statistics)  
Bijsters, Samantha Jane (Mathematical Statistics)  
Buys, Ruan (Financial Risk Management)  
Chabalala, Phisa Sinikiwe Hiandzile (Transport Economics)  
De Clippel, Laurence Annouchka Vincent Michele (Logistics Management) (*cum laude*)  
De Jongh, Daneel (Human Resources Management)  
Dodd, James Andrew (Financial Risk Management)  
Downing, Samantha (Operations Research)

Engelbrecht, Louren Sharn (Logistics Management)  
Fitzhenry, Kirsty Leigh (Financial Risk Management)  
Halgryn, Rita Helena (Logistics Management) (*cum laude*)  
Harker, Terri Katelin (Financial Risk Management)  
High, James Luke (Logistics Management)  
Holtzhausen, Yolande Ailsa (Industrial Psychology)  
Huskisson, Simone (Logistics Management)  
Lederer, Alessia Renate (Financial Risk Management)  
Maphatsoe, Phuthehang (Financial Risk Management)  
Meyer, Anton Michael (Financial Risk Management)  
Mkhize, Nobuhle (Industrial Psychology)  
Moche, Gomolemo Thamsanqa (Financial Risk Management)  
Ngwenya, Thembeke Precious (Transport Economics)  
Pienaar, Anel (Logistics Management)  
Pinto, Lara Amalia (Logistics Management)  
Reade-Jahn, James Max (Transport Economics)  
Rhoda, Aishah (Industrial Psychology)  
Roseveare, Philippa Lynne (Logistics Management) (*cum laude*)  
Sesink Clee, Daniel Luc (Logistics Management)  
Strauss, Suzan (Industrial Psychology)  
Strydom, Krynauw (Financial Risk Management)  
Tallie, Charissa (Financial Risk Management)  
Venter, Tiaan (Business Management)  
Waite, Tasmin Stephanie (Logistics Management)

#### Nagraadse Diploma in Strategiese Menslikehulpbronbestuur Postgraduate Diploma in Strategic Human Resource Management

Sibalatani, Lingani Martha

#### Nagraadse Diploma in Vervoer en Logistiek Postgraduate Diploma in Transport and Logistics

Abdulkadir, Mosidi Margret  
Berend, Kamogelo Katiso  
Carter-Smith, Rebecca  
Masawe, Olipha  
Truscott, Johannes Viljee

#### Nagraadse Diploma in Bemarking Postgraduate Diploma in Marketing

Beck, Amber Kelly (*cum laude*)  
Benting, Shannon Leigh  
Du Toit, Lana  
Heydorn, Shael Irene  
Hugo, Preston James  
Kat, Caitlin (*cum laude*)  
Koegeleberg, Phillip Christiaan  
Koekemoer, Antigua Rose  
Koen, Josephine Suseth  
Lamberts, Kayler Kim  
Maree, Byron Thorne  
Melvill, Michelle  
Mnisi, Vukosi Prosper Frederick  
Smith, Matthew Andrew  
Theron, Danéll  
Van der Veen, Mieke (*cum laude*)  
Visser, Anke

Werth, Carla  
White, Caitlin Mornette

**Nagraadse Diploma in MIV/Vigsbestuur  
Postgraduate Diploma in HIV/AIDS Management**

Agyepong-Yeboah, Amma Agyeman  
April, Siphokazi  
Barnes, Zolani  
Bening, Joyce Emakayor  
Bhengu, Phindile Precious  
Biyela, Bontle  
Cenga, Oyena  
Chilwane, Vincent  
Chiroma, Darlentine Mbachu  
Cingo, Lihle Athiphila  
Davids, O'Brian Anthony (*cum laude*)  
Dikolomela, Gontse Tharololo  
Dinge, Nomampondomise Precious  
Dlamini, Bongekile  
Godongwana, Thuthuzela Faith  
Goliath, Megan Melissa  
Gomo, Patricia Rungano  
Gwebu, Celani Bongani  
Gxalatana, Tandeka  
Hamukuaya, Dilona Tuliikeni  
Hlobo, Asanda  
Hlongwane, Bongiwwe Precious  
Kassakila, Sadiki Louis  
Kgobane, Isaac Ratsie  
Khaba, Moshawa Calvin  
Khumalo, Sinenhlanhla  
Kiburi, Mary Kawira  
Klaas, Zolani  
Kubheka, Sphelele  
Lebotse, Ntsakisi  
Lesemela, Tselane  
Litabe, Boniswa Portia  
Luwere, Nana Ngaley Nouchka  
Mabeba, Tshweeng Dorah  
Mahlulo, Qhama  
Makhaye, Thembelihle  
Makhoba, Thembela Nothando  
Malinga, Sanele  
Malivhadza, Marubini Bonny  
Maluka, Heskin Castro  
Mampunye, Siyanda  
Manuel, Kay-Lee Marechell  
Masango, Thembelihle Dudu  
Masangu, Sandra  
Masimula, Mbalenhle Valentine  
Mathoma, Alipfali Mary-Jane  
Mathunda, Thulani Audrey  
Mbutso, Sfiso  
Mbuyi, Carine Kadima  
Mdliswa, Lindokuhle Viola  
Mhlongo, Gladness Princess Zodwa  
Mhlongo, Lindelwa  
Mjaja, Ntombithule Samantha  
Mjuza, Nwabisa  
Mkwelo, Luthando Nkosinathi  
Mmatsoku, Moloko Stephen  
Mmirikwe, Chimezie Gideon  
Mncwango, Buhle Fortunato  
Modise, Precious Kealeboga  
Mogano, Mmamara Christinah  
Mokhahlane, Mpeile Catherine  
Morakeng, Sophie Nkele  
Mosome, Refilwe Rheumonia  
Mpampi, Bulelwa (*cum laude*)  
Mphakathi, Palesa Edith

Mphathi, Uphelin Zimkhitha  
Mpongwana, Siziphiwe Anda  
Mthethwa, Sindisiwe Innocentia  
Mtoba, Kwezi Kwalo  
Mtshali, S'thandazile Bongeka  
Mungongo, Kasaku  
Muoka, Kelechi Josephine  
Mutambay Ndaya, Jinny  
Mxoli, Thabisa Alec  
Nakedi, Makoloi Sarah  
Ncoyo, Phumza  
Ncula, Kholiwe Gloria  
Ndjeka, Khethiwe  
Ndlebe, Jongisizwe  
Ndlovu, Thembekile Fidelia  
Ngcobo, Ziningi Cynthia  
Ngobeni, Charity  
Nhlengethwa, Khululiwe Prudence  
Noemdo, Kerwin David  
Ntaka, Punka Phatheka  
Ntlharapane, Omphemetse Shadrack  
Ntombini, Nosipho  
Ntsaba, Mosa Victoria  
Ntshiqqa, Nosiphelo Alakhe  
Nyawo, Michael Sboniso (*cum laude*)  
Nyawo, Patrick Sifiso  
Nyenye, Lineo Grace (*cum laude*)  
Otsogile, Kelebogile  
Phiri, Sithembile Nozipho  
Qaka, Siviwe  
Quvana, Asiphe  
Ramakau, Arcilia Nthabiseng (*cum laude*)  
Roberts, Moleboheng Marcia  
Sanda, Thembakazi  
Sekhu, Tsholofelo Audrey  
Semoisi, Tefo Stephen  
Sibandze, Nontobeko Lucia (*cum laude*)  
Sibiya, Siphumuzo Bruce  
Sikhosana, Xolile Emmarancia  
Situ, Hlalanathi  
Skosana, Mandla Sandile  
Sobhi, Saber Saber Sobhi  
Speelman, Mary-Anne Anna  
Tembe, Sabelo Obert  
Thebe, Mojalefa  
Thejane, Matumelo Lonea  
Thela, Zanele Cynthia  
Thite, Palesa  
Tshabalala, Thokozile Zama  
Tshirana, Nangamso  
Van Rooyen, Robyn  
Vasconcelho, Gabriel  
Vellem, Asanda  
Wakunga Mwitwa, Vanessa  
Williams, Joyce Nomnikezo  
Xongo, Anele  
Xulu, Khanyisile Patricia  
Zininga, Chipso

**Baccalaureus in die Handelwetenskappe  
Bachelor of Commerce**

Adams, Dayle  
Alberts, Jarrod Giovanni  
Anthony, Kira Jade  
Arends, Kayla Nicole  
Azevedo, Karlo Antonio  
Babüroglu, Dilara  
Banda, Takudzwa Vincent  
Barker, Tyla Storm  
Barrish, Daniel



Bastiaanse, Nicoline Nenetie  
Bentley, Elizabeth Judith  
Bettings, Mattieu  
Bico, Jannet  
Blandin de Chalain, Courtney Marie  
Bleeker, Jacqpiere  
Bolus, Gregory Vintcent Maxwell  
Boshoff, Simeon  
Bowazi, Elsie Daisy Alice  
Boyd, Bradley Richard McCready  
Bradbury, Ryan Jon  
Bradfield, Declan Wayne  
Brand, Daniel Andrew  
Breedt, Roland Dirk  
Breytenbach, Tanagh Jane  
Brink, Peter Andrew Meynell  
Britz, Johan  
Burger, Janke  
Burns, Andrew Keith  
Cairns, Amy-Lee Moyes  
Cavell-Clarke, Christopher  
Chiyangwa, Mufarowashe  
Coetsee, Werner  
Conradie, Jacobus Daniel  
Daly, Jordan Alexander  
Davids, Lance Claude  
Davis, Robert Govert  
De Beer, Matthew Bradley  
De Freitas, Romano Fernando  
De Jager, Isabelle  
De Klerk, Neena  
De la Harpe, Janke Juanita  
De Nysschen, Cornelius Johannes  
De Vos, Carl  
De Wet, Johannes Christiaan Hendrikus  
De Wet, Mieke  
Dekker, Catharina Hedwig  
Dladla, Nokuthula Prisca  
Dos Santos, Gabriela  
Dos Santos, Gino Rocha  
Drotskie, Pieter  
Du Buisson, Jacoline Petro  
Du Plessis, Emile Dwayne  
Du Plessis, Lynn-Mari  
Du Preez, Louis Johannes  
Durant, Amore  
Easey, Ross David  
Elema, Reinhardt  
Ellis, Chanté Petro  
Esteban, Cheska Zen  
Fagan, Zacaree Jaryd  
Fechter, Anya  
Feldon, Michaela Emma  
Fourie, Stephen Justus  
Frank, Johan  
Franken, Simon (*cum laude*)  
Gibson, Luke Aaron  
Gilson, Georgia  
Goosen, Eduan  
Govender, Ashari Darshana  
Greeff, Christoffel Johannes  
Greyling, Dorothea Elizabeth  
Greyling, Ferdinandus Jacobus  
Groenewald, Emily Faye  
Haasbroek, Lauren  
Halgryn, Leon Philippus  
Heard, Matthew  
Hellens, Lucy Elizabeth  
Hendricks, Clé Sergio  
Herd, Joshua

Heyl, Isabelle Christina  
Hiltermann, Michael James Christian  
Hinds, Clifton Thomas Thade  
Horn, Miché  
Horner, James Claridge Marsden  
Hughes, Kieran Michael  
Huisamen, Zulaine  
Hunting, Alex James  
Ingle, Edan Rachel  
Jardim, Simone Laura  
Jarvis, Peter John (*cum laude*)  
Jevon, Dale Matthew  
Johannes, Emmerentia Jo-Anne  
John, Andréya Celine  
Kallis, Zander Christo  
Kambasha, Kimberley Wadzanai  
Kent, Jaime Margaret  
Khan, Fatima  
Kim, Ye-Ho  
Kinsey, Joshua Darren  
Kock, Brittany  
Koopman, Kaythlynne Ruth-Anne  
Kraut, Adam Isaac  
Kroese, Nichol  
Kruger, André  
Kruger, Tharien  
Kuehl, Natascha  
Le Roux, Spencer Wian  
Le Vatte, Michaela  
Leather, Christy (*cum laude*)  
Letcher, Ross  
Levermore, Nicholas Andrew  
Loeij, Caitlin Hanna (*cum laude*)  
Lourens, Carla  
Lourens, Ruben  
Louw, Deon Dirk  
Lund, Emma Francis  
MacNaughton, Bradley Peter  
Maharaj, Priyanka  
Malherbe, Jozua Francois  
Mapfuisse, Richard  
Marr, Jason Caleb  
Matonda, Alison Munashe  
Matthysen, Jannis  
Mavovana, Mike-Jr  
Maynard, Dylan John  
McLean, Cameron  
Mdyesha, Zimasa  
Melim, Antonia  
Meyer, Cecilia  
Miller, Enrique  
Milton, Richard Vincent  
Mogwaneng, Motolo Thuso  
Moitshoki, Lungelo Moitshoki  
Montocchio, Emma Jane  
Moses, Sylvia Busiziwe  
Mostert, Stephan  
Motsi, Munashe David  
Mouton, Andries  
Mowers, Keshia  
Mudzongo, Tadiwanashe  
Naidoo, Tashen  
Ndengu, Juliette Varaidzo Tanisha  
Neethling, Marli  
Nel, Harold Jordan  
Newman, Harry James  
Newton, Jethro Scott  
Ngonyama, Thandolwethu Zithabile  
Niehaus, Heyneke  
O'Flaherty, Sean Thomas  
Odendaal, Jacobus Johannes Jacques



Orton, Kirsten  
Parker, Philip Holden  
Perlman, Cullen  
Pienaar, Pieter Jan  
Pieters, Minette Anne  
Pollet, Adrian Xavier  
Poulter, George Richard John  
Prins, Bianka  
Prinsloo, Nadene Cheryl  
Proctor, Benjamin Harry  
Qonongo, Sivuyisiwe  
Rapoo, Kgomotso Langutelani Porogo  
Rensburg, Lincoln Lionel  
Rijneveld, Walter Joost  
Rimell, Courtney-Marie  
Robbetze, Bjorn  
Robertson, Sydney  
Rodenbach, Emerick  
Rodenbach, Nicolas  
Rossouw, Christiaan Le Cordeur  
Rossouw, Jean-Jacques  
Sakalis, Kimon Michali  
Sale, Luke Shaun  
Sampson, Kai  
Samson, Whitney  
Sauls, Stacey Alyssa  
Schoeman, Stephanus Daniel  
Schoonwinkel, Jomari  
Searle, Alexander Brian  
Seele, Markus  
Sivertsen, Kian Alexander  
Slabber, Adriaan Jacobus  
Slater, Christopher Howard  
Slingers, Ruby Maxine  
Smit, Barend  
Smith, Dylan  
Smuts, Michelle  
Soon, Yeh Bon  
Sparks, John Winchester  
Spence, Bruce Terence  
Stander, Ross  
Stevens, Luke Watson  
Stock, Megan Lisa  
Stokes, Craig Matthew  
Stramis, Désirée Ronelle  
Strydom, Matthew Jon  
Subroyen, Ariana Bethany  
Swartz, Jason Patrick  
Tafeni, Sonwabile  
Tait, Logan Michael  
Takalimane, Thakane Charity  
Taljaard, Kaylyn  
Theledi, Jando Leruo  
Trussell, Jaime-Lee  
Uys, Milé  
Van Aarde, Johannes Nicolaas  
Van der Merwe, Johannes Jurgens  
Van der Merwe, Rudi  
Van der Riet, Troon Jacob  
Van der Walt, Tjaart Johannes  
Van der Westhuizen, Michael  
Van der Westhuizen, Stephanie  
Van Eeden, Kiera Megan  
Van Greuning, Werner  
Van Heerden, Jack Patrick  
Van Leeuwen, Greg Ryan  
Van Rensburg, Charl Jaco  
Van Rooyen, Renate  
Van Staden, Gerhardus  
Van Veijeren, Alexandra  
Van Wyk, Stefan Erasmus

Van Zyl, Janita  
Viljoen, Kelly  
Visagie, Jani  
Visser, Anika  
Visser, Leonore Helene  
Visser, Michele Christine  
Wahl, Marga  
Wallace, Cole Andrew  
Wehmeyer, Kyla Jade  
Wessels, Anita Emerentia  
Wessels, Loren  
Wessels, Tamera  
Whitaker, Reece  
Williams, Kieran John  
Williams, Nicholas Louis  
Witbooi, Bradley Delton  
Woodburn, Steele T  
Wyatt-Smith, Taylor  
Yoon, Dong Jun

### **Baccalaureus in die Handelwetenskappe in Internasionale Besigheid**

#### **Bachelor of Commerce in International Business**

Carew, Hannah Louise  
De Bruyn, Rynhard Anton (*cum laude*)  
Emms, Georgia  
Emslie, Ryan  
Fielding, Devon Henri (*cum laude*)  
Georgiades, Paige (*cum laude*)  
Grant, Grace Margery (*cum laude*)  
Grenfell, Aeron Shayne (*cum laude*)  
Hattingh, Renier Christiaan  
Heyns, Lieze  
Hubble, Tessa (*cum laude*)  
Maherry, Sydney-Aidan  
Manyika, Ruremekedzo Amanda  
Matthews, Naadirah  
Mortleman, Caylie Beth (*cum laude*)  
Naidoo, Nishtha  
Nothnagel, Michael Stephan  
Pretorius, Annika  
Raw, Justine  
Strydom, Willem Hendrik (*cum laude*)  
Van der Merwe, Emma  
Van der Merwe, Lara  
Willard, Nathan  
Wilson, Abigail Grace (*cum laude*)  
Young, James Campbell





## **Fakulteit** **Faculty**

Economiese en  
Bestuurswetenskappe (Groep 2)

Economic and Management  
Sciences (Group 2)

**7 April 2022 - 13:00**

**7 April 2022 - 13:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

1. Akademiese prosesie kom die saal binne.
2. Speel van die Nasionale Lied.
3. Formele konstituering deur die Kanselier.
4. Verwelkoming deur die Kanselier.
5. Voorstelling van kandidate wat kwalifikasies ontvang deur die dekaan van die fakulteit en toekenning van kwalifikasies deur die Kanselier.
6. Voorstelling van kandidaat vir die Kanselierstoekenning en oorhandiging van die toekenning deur die Kanselier.
7. Sluiting deur die Kanselier.
8. Akademiese prosesie verlaat die verhoog.

*Staan asseblief*

## Programme

*Please stand*

*Please stand*

*Please sit*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Chancellor.
4. Welcome by the Chancellor.
5. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Chancellor.
6. Introduction of the candidate for the Chancellor's Award and presentation of the award by the Chancellor
7. Closing by the Chancellor.
8. The academic procession leaves the stage.

*Please stand*

# Fakulteit Ekonomiese en Bestuurswetenskappe (Groep 2) Faculty of Economic and Management Sciences (Group 2)

## DOKTORALE KWALIFIKASIES | DOCTORAL QUALIFICATIONS

### DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY

**HLATSHWAYO**, Ayanda (Economics)

#### **Wage dynamics, trade-related wage premia and productivity spillovers: Evidence from the South African manufacturing sector**

This study uses the SARS-NT tax administration-linked employer–employee panel dataset to gain new insights into wages, trade and productivity in the manufacturing sector. The results show that unchanging worker characteristics dominate both wage levels and growth. However, for low-income employees' wage levels, the characteristics of the firm are relatively more important. Firms that have international exposure through imported inputs, export sales and foreign direct investment pay the highest wages. Lastly, there are positive productivity spillovers from foreign-connected firms to domestic firms through worker mobility. This indicates the importance of participation in international markets for firm productivity and wages.

*Supervisor:* Prof N Rankin

**KIMBUGWE**, Hassan (Economics)

#### **An assessment of malaria prevention, diagnosis and treatment services in Uganda**

Despite substantial investments in malaria prevention programmes, the disease still accounts for the lion's share of mortality, outpatient visits and inpatient admissions in Uganda. This study finds that maternal education significantly boosts bed net utilisation among household members. Despite an improvement in the uptake of intermittent preventive treatment (IPT) during pregnancy in Uganda, uptake remains below the World Health Organisation target and with an overlap in the predictors of low uptake of IPT and antenatal care visits. It is also found that staff remuneration affects incentives for adherence to malaria protocols.

*Supervisor:* Prof R Burger

*Co-supervisor:* Dr F Matovu (*external*)

**MINNIE**, Roan Johan (Economics)

#### **Bargaining competition and vertical mergers**

The modelling of vertically related markets and vertical mergers involves several modelling choices that affect predicted model outcomes, such as wholesale and retail prices as well as output. Using simulation-based methods, the study compares alternative models of vertical competition based on different assumptions regarding the nature and object of vertical contracting. This allows a subsequent simulation-based comparison of models for analysing vertical mergers, showing how assumptions regarding vertical contracting map onto observable merger effects. Based on this comparison, the study introduces a vertical merger simulator tool for assessing vertical merger scenarios in practice.

*Supervisor:* Prof WH Boshoff

*Co-supervisor:* Prof LM Froeb

**MKUPETE**, Jaah (Economics)

#### **Examining child health and nutrition inequalities in Tanzania**

This study explores sources of persistent malnutrition and unequal opportunity in stunting among children below the age of five in Tanzania. Econometric findings show that food price fluctuations reduce child growth, although the impact is less severe in households that produce their own food. Milk consumption improves growth only in children aged two and older, contingent on living in households that own mixed ruminants. Inadequate water and sanitation services are leading contributors to unequal opportunity in rural areas. In urban areas, early-life feeding practices and food price fluctuations dominate. Proposed solutions focus on the smallholder sector and investments in rural infrastructure.

*Supervisor:* Prof D von Fintel

*Co-supervisor:* Prof R Burger

**MWALE**, Martin Limbikani (Economics)

#### **The impact of farm input subsidies on women and children: Evidence from Malawi**

African governments reintroduced farm input subsidies to restore food security to smallholder farmers. While previous evaluations highlighted positive aggregate impacts, this study is the first to focus on the effect of these subsidies on women and children, using microeconomic evidence from a Malawian survey and satellite data. Gender inequality worsens as landless women lose decision-making power to their husbands. Nevertheless, long-term child nutrition improves conditional on exposure to quality health care in early life. Girls' school dropout rates fall because kinship traditions incentivise fathers to leverage the subsidies for their daughters' benefit. Therefore, subsidies favour girls, but only until they marry.

*Supervisor:* Prof D von Fintel

*Co-supervisor:* Dr A Smith



# Fakulteit Ekonomiese en Bestuurswetenskappe (Groep 2) Faculty of Economic and Management Sciences (Group 2)

## ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

### Magister in die Handelswetenskappe Master of Commerce

Brand, Anika (Actuarial Science)  
Brink, Jeanne (Economics) (*cum laude*)  
Burger, Liebe (Economics)  
De Nobrega, Hannah (Economics)  
De Wet, Jessica (Economics)  
Dolling, Jérôme (Economics) (*cum laude*)  
Douglas, Jacobus Lodewicus (Economics)  
Eybers, Johannes (Actuarial Science)  
Friday, Megan (Economics)  
Huffer, Calvin (Economics)  
Landy, Angelique (Computer Auditing)  
Lefela, Teboho David (Computer Auditing)  
Marais, Wihan (Economics) (*cum laude*)  
Matulich, Nadia Antonette (Economics) (*cum laude*)  
Randell, Charles Malcolm (Economics)  
Redders, Hannah (Economics)  
Rouillard, Bruce James (Economics) (*cum laude*)  
Rühle, Rebekka Sophie (Economics)  
Tzemis, Jethro (Economics)

### Magister in Rekeningkunde Master of Accounting

Goosen, Lize Adre

### Honneurs-Baccalaureus in die Handelswetenskappe Bachelor of Commerce Honours

Barnard, Paulus Retief (Management Accounting)  
Basson, Adriaan Smit (Management Accounting)  
Cater, Tian (Economics)  
Dlulane, Landela (Statistics)  
Eloff, Christiaan Johannes (Economics)  
Farquhar, Christopher (Economics)  
Gauna, Andrea Lucia (Economics) (*cum laude*)  
Grobler, Nadia (Management Accounting)  
Groenewald, Wiaan (Management Accounting)  
Jansen van Vuuren, Ruan (Economics)  
Kreyfelt, Jason Duane (Statistics)  
Laing, Harriet Catherine (Economics)  
Leaser, Jody Ray (Management Accounting)  
Maganga, Susana Faustin (Statistics)  
Makin, Kate (Economics)  
Manefeldt, Peter Cornelius (Statistics)  
Mboko, Lewis Tendai (Economics)  
Mkandawire, Lusungu (Economics)  
Monnaatsheko, Mofenyi Winnie (Economics)  
Msiza, Nokuthula Michel (Management Accounting)  
Munsamy, Braden Ross (Economics)  
Mupfumi, Farai (Management Accounting)  
Naidoo, Reed (Statistics)  
Olivier, Carel Aron (Economics)  
Rossouw, Gerard Jacques (Economics)  
Schwartz, Ivan Vivienne Lambert (Management Accounting)  
Scott, Samantha Leigh (Economics)  
Stapelberg, Keara-Linn (Statistics)  
Staples, Sharon Lineo (Management Accounting)  
Strydom, Joshua Luke (Economics)  
Swanepoel, Frederik (Management Accounting)  
Tadi, Keabetswe (Management Accounting)

Takalani, Mukovhe Glen (Economics)  
Taylor, Hiten (Management Accounting)  
Terblanche, Emma Leonie (Economics)  
Uys, Elmi (Management Accounting)  
Van der Vyver, Johan Louis (Economics)  
Van Huyssteen, Lea (Management Accounting)  
Van Zyl, Hendrik Loubser (Economics)  
Viljoen, Zinia (Management Accounting)  
Wellmann, Sven Oswald (Economics)  
Wrensch, Jessica Kelsey Anne (Economics)

### Nagraadse Diploma in Rekeningkunde Postgraduate Diploma in Accounting

Anderson, Mark Geoffrey  
Barendse, Godwin Landor  
Beukes, Marali  
Billyram, Mahesh  
Botha, Greyling  
Cantatore, Sabrina  
Chamane, Ntandoyenkosi Marcia  
Chibi, Rutendo  
Cloete, Mynhardus Jacobus Marais  
Coetzee, Ben James  
Coetzee, Cornelis Jacobus  
Cremen, Dene Patrick  
Deats, Jake Ethan  
Desai, Shailen Ravi  
Dietrich, Abigail  
Downey, Justin Dillon  
Dreyer, Robin Francois  
Fleischhauer, Reuben Owen  
Forder, Ross Jerome  
Ganda, Sibahle  
Ganief, Mu'izz  
Geel, Hendrik  
Hinchcliffe, Aran James  
Hopane, Marona  
Kana, Mahomed  
Koekemoer, Carmen  
Labuschagne, Pieter Wilhelmus  
Letsie, Nothando  
Magadze, Tyrone-Junior  
Martins, Kenau Laignh  
McEwan, Megan Kirsty  
McLeod, Jenna Claire  
Munyombwe, Doreen Muchaneta  
Napoli, Lorenzo Gerardo Giuseppe  
Ndlovu, Nomazwi  
Philippides, Aspasia Maria  
Poole, Nicholas John  
Putter, Celine  
Raats, Kenneth Estiaan  
Rafferty, Jaddan Nevan  
Siddle, Megan Grace  
Small-Smith, Antonie Johan  
Smith, Charne  
Sutton, Kierny Mary  
Thomson, Jemma Frances  
Tollman, Luke David  
Van den Berg, Ivonne Maureen  
Van der Merwe, Donovan

Van Tonder, Carli  
Viljoen, Delano  
Walters, Johannes Roux  
West, Abigail Lorraine  
Witte, Marché

**Nagraadse Diploma in Aktuariële Wetenskap  
Postgraduate Diploma in Actuarial Science**

Kotze, Sumane

**Baccalaureus in die Handelwetenskappe  
Bachelor of Commerce**

Basson, Raold Daniël  
Bhugwan, Sahil Rajesh  
Brown, Lauren  
Bryant, Christopher William  
Burger, Riaan  
Cillié, Jacobus Daniël  
Combrink, Xander Francois  
Couzens, Scott Roy  
Dampies, Grant Hammond  
De Abreu Aires, Nicole  
De Jager, Theanca Eleanor  
Donkin, Tayla Ann  
Du Toit, Haniel  
Duimpies, Lance Grant  
Dyson, Ranaldo Russel  
Ehlers, Gysbert  
Esau, Cari Abigail  
Esterhuysen, Jean-Pierre  
Ferreira, Miyanke  
Frans, Jade Jodie  
Geldenhuys, Ruan  
Gerber, Louie (*cum laude*)  
Goodman, Caitlin Mae (*cum laude*)  
Gordon-Turner, Liam  
Greyling, Elizabeth Petra  
Gricius, Kyla  
Grosch, Joel Caleb (*cum laude*)  
Grove, Adrian  
Haller, Christopher James  
Harvey, Simon  
Hassiem, Rizqah  
Hira, Bhindiya  
Hugo, Daniël Leon  
Hulme, Victor Daniel  
Isaacs, Darren Marcel  
Isaacs, Gardeo Edward  
Jacobs, Milisa  
Jennings, Mark Douglas  
Johnson, Caitlin Marie  
Kamocho, Langelihle Lesley  
Kleinsmit, Michael Jacobus  
Kleu, Matthew Murray  
Kriel, Albertus Bernardus  
Kuzamunu, Jemima Mambote  
Kwibe, Natalie  
Lee, Ryan Pin-I  
Lenyeta, Teboho  
Liang, Peng-Chen (*cum laude*)  
Lishman, Saxony Angela  
Loubser, Christoffel Johannes  
Lubbe, Yvonne  
MacKay, Zai boonisha  
MacKay, Zirk  
Mashavave, Elvis  
Masibekela, Mbalenhle Sindisiwe  
Masumpa, Asiphe Mercy  
Mbungu, Sinalithemba  
Meaker, Cade Reece

Mostert, Amicke  
Muganda, Vanessa Deogratias  
Murray, Brandon Ramiro (*cum laude*)  
Ndonyane, Lebone Nteseng  
Nel, Petrus Abel Elias  
Ngwenya, Thembelihle Glory  
Oelofsen, Yzané  
Pandula, Abongile  
Pretorius, Reuben André  
Rhoda, Maryam  
Rietoff, Kezia  
Sadie, Joshua Abraham  
Schreuder, Christopher Louis  
Scott, Kaylah Dayne  
Smit, Steven  
Smith, Savannah Lee Maria  
Solomon, Christopher Daniel  
Strydom, Beyers  
Swart, Johannes Dreyer Morkel  
Teanby, Daniel Michael  
Terblanche, Simone  
Tewesa, Harriet  
Tooze, Nicholas  
Tredoux, Zandrea  
Trodd, Bryce Henry  
Trumpie, Susanna Hester  
Tubb, Kobus  
Van der Merwe, Johann Friedrich Eich  
Van Eetveldt, Christoph Frans  
Van Heerden, Tatum Jade  
Van Nierop, Michaela Glenda  
Van Schalkwyk, Aldrick Percivall  
Van Zijl, Alexander Gideon Willem  
Van Zyl, Anita  
Varley, Hanco Robert  
Vezasie, Gaby Kelly  
Walker, Travis  
Zembere, Dan-Angelus

**Baccalaureus in Rekeningkunde en Baccalaureus in die  
Regsgeleerdheid  
Bachelor of Accounting and Bachelor of Laws**

Aucamp, Chris mari  
Bensch, Alexandra  
Bezuidenhout, Leonard Francois  
Botha, Chirs Mulder  
Brandmuller, Carl Gustav  
Burger, Willem Abraham  
Charles, Ché Pogisho  
Chiro, Amanda  
Cronje, Eliz-Maric  
Haupt, Victor Gabriel  
Kieslich, Jenna (*cum laude*)  
Koetsier, Hans-Jacques  
Le Roux, Johan Hendrik  
Lengana, Pride Thabo Mohapi Boipelo  
Lindeque, Ané Anette  
Lötter, Antoinette  
Lumley, Keegan Bradley  
Motumi, Onkgopotse Ratladi  
Naidoo, Diyanka  
Scarrott, Shannon Paige  
Smit, Gerbrand Grobler  
Steenkamp, Philip Rudolf  
Stronkhorst, Angelique  
Unger, Aimee Michaela  
Van Eck, Robyn Mari



**Baccalaureus in Rekeningkunde**  
**Bachelor of Accounting**

Adams, Jamie-Lee  
Agherdien, Moegamad Laeeq  
Aucamp, Jean Pieter  
Bailey, Cailin  
Barnard, Adam Alexander  
Barnard, Annay  
Barrow, Georgina Ailsa  
Barry, Shannon Linda (*cum laude*)  
Basson, Jana  
Boettger, Roeloff Jacobus  
Bogner, Phoebe  
Bosman, Ferran  
Botha, Lumé Martedi  
Brand, Jacolene  
Brand, Rikus Erasmus  
Brandsma, Savannah Justine  
Brandt, Dominique  
Breetzke, Bradley William Paul  
Brink, Jessie  
Buckle, William James  
Burger, Kristie  
Cahi, Adam Sahd  
Cameron, Andrew Barry  
Campbell, Kayley Ann  
Chimbetete, Tirivashe  
Claassen, Jeanne  
Claassen, Kira  
Cloete, Andrew Jonathan  
Clother-Sinclair, Cameron Karl  
Clother-Sinclair, Courtney  
Coetzee, Ruben John  
Conradie, Megan  
Cornelissen, Jovan  
Curtis, Dylan Michael  
De Bruyn, Carla  
De Gray Birch, Kian Anthony  
De Jager, Janeli Louisa  
De Jager, Miha  
De Kock, Bernè  
De Villiers, Andre  
De Villiers, Rudolph Marcus  
De Waal, Adriaan Otto  
Dhlamini, Jo-Anne Mantoa Basetsana  
Diedericks, Anne  
Du Toit, Friedrich  
Eigenhuis, Jakobus Barend  
Eksteen, Stefanie  
Ellis, Jonah Charles  
Emond, Rebecca Jane  
Endenburg, Rory  
Enslin, Tereza  
Evans, Bradley Kenneth  
Fagg, Kelly Dee  
Fagodien, Raeeza  
Fearnhead, Emma Rosalind  
Ferreira, Liam  
Firth, Anne Florence  
Fleischhauer, Luke Christian  
Fleming, Maxwell Leslie  
Fyfe, Megan Julia  
Gerrard, Loren Tayla  
Gilfillan, Christoph Wehan  
Goff, Zoe Samantha  
Gonneau, Sebastian  
Greyling, Ruben David  
Hamman, Eduard Christiaan  
Hart, Thomas Robin  
Hay, Eduan Johan

Heyns, Marli  
Hoffmann, Lauren Kate  
Hofmeyr, Matthew Philip  
Hofmeyr, Thomas  
Hornickel, Frauke  
How Son, Nathan Kyle  
Hudson, Sam William Hougham  
Hulme, Reinhold  
Human, Daniele  
Hunt, Jared Keagan  
Huxter, Jamie Isabel  
Irvine, Richard Oliver Forbes  
Jauss, Matthias Gerald  
Jones, Caleb Tavis Wayne  
Jordaan, Hendrik Jacobus  
Joubert, Cailin Ashleigh  
Kader, Kiara  
Kantilal, Riya  
Kesaris, Hayden Gilbert  
Klopper, Frances  
Koch, Jack Anton  
Labberte, Ryan James  
Lahoud, Laurence Michael-John  
Lambert, Jordan  
Lamprecht, Henry  
Larney, Kirsten  
Lategan, Ida-Mari  
Lategan, Louis Stephan  
Lewis, Todd John  
Liebenberg, Theunis Jacobus  
Louw, Brendan  
Lucas, Lisa Amber  
Maluk, Aqueel  
Mariette, Kaylin  
Mathews, Curtly William Douglas  
Matiwane, Ngamele Gareth  
Matthews, Caleb Micha Paul  
Mazoue, Taliza  
Mckie, Chelsea  
McLachlan, Caitlin  
McCloud, Migael  
Meth, Sinovuyo Sanelisiwe  
Mokawane, Thato Kevin  
Moonsamy, Trezhlan  
Moxley, Bianca June  
Mukwevho, Michelle Andiswa  
Muller, Aletta Helena  
Muller, Helaine Janka  
Muller, Lindie  
Muller, Magnus Clifton  
Mungle, Anna Emily  
Murison, Jenna Jade  
Muroa, Reamohetse Appreciate  
Neethling, Jana  
Neethling, Johannes Josua Christiaan  
Newton, Declan Richard  
Ngonyama, Mincili Ncubeko  
Noble, Ivanka  
Oellermann, Shannon  
Petersen, Kianna  
Pool, Chrisne  
Potgieter, Tertius Mechiel  
Qabo, Chumisa Innocentia  
Qagana, Yamkela  
Quin, Leighton  
Rautenbach, Kurt  
Renoster, Oren Mcmel  
Reynolds, Taine James  
Richardson, Ryan  
Rijnen, Zahn  
Roberts, Emile Roy



Rose-Innes, Kelly Joy  
Rouillard, Claire Marie  
Rutherford, Laura Megan  
Sauer, Zéann  
Scheller, Karl Hans Friedrich Alexander  
Scholtz, Daniël Francois  
Shtein, Alexandra Katherine  
Siebritz, Tian Nicolaas  
Steyn, Liam  
Strauss, Werner Frederich  
Sutherland, Conrad  
Swart, Willem Adriaan Stals  
Theron, Lehan  
Theron, Petrus Johannes Jacobus  
Theunissen, Marthinus Wilhelmus  
Thomson, Christopher James  
Thorpe, Kelly Anne  
Titus, Simone Ashleigh  
Tostee, Carl Alain  
Tsela, Simphiwe  
Tsetetsi, Thabang Boti Samuel  
Turner, Liam Riley  
Van Burick, Johannes Lodewiekus  
Van den Berg, Duan  
Van der Merwe, Ebenice Laetitia  
Van der Merwe, Hentie

Van der Merwe, Ivann Christiaan  
Van der Merwe, Schalk Willem Petrus  
Van der Spuy, Lehani  
Van der Westhuizen, Carmine  
Van Heerden, Stephan Matthew James  
Van Rooyen, Elmarie  
Van Tubbergh, Justin James  
Van Zyl, Caro  
Van Zyl, Daniel Brendan  
Van Zyl, Hendrik Abraham  
Van Zyl, Jakob Benjamin  
Varley, Eugene Donovan  
Versfeld, Robert Owen Rees  
Vilakazi, Ntokozo Sizakele  
Viljoen, Janeke  
Warnich, Duan  
West, Johan Daniel  
West, Micaela Mary  
Westcott, Cayleigh Jessica  
Wicomb, Lara  
Williams, Yuomna  
Wood, Amy Joy  
Wood, Lloyd Tanner Fergus  
Zingela, Robert  
Zororo, Tadiwanashe

## Kanselierstoekenning | Chancellor's Award

### FAKULTEIT EKONOMIESE EN BESTUURSWETENSKAPPE FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

#### Johan van Rooyen

Mnr Johan van Rooyen word vereer vir sy uitsonderlike bydrae as Direkteur: Inligtingstegnologie (IT) in die Fakulteit Ekonomiese en Bestuurswetenskappe. In sy loopbaan van meer as drie dekades het hy die Fakulteit behendig gelei van die begindae van persoonlike rekenaars op kampus, deur die IT-revolusie, tot vandag, waar IT-oplossings en -infrastruktuur onontbeerlike instaatstellers is van die Universiteit Stellenbosch se sukses. Mnr Van Rooyen se toewyding, strategiese versindheid, vindingrykheid en sterk leierskap het 'n diepgaande impak op die vlot funksionering van die Fakulteit en die sukses van ons studente

Mr Johan van Rooyen is honoured for his exceptional contribution as Director: Information Technology (IT) in the Faculty of Economic and Management Sciences. In a career spanning more than three decades, he has steered the Faculty from the very first days of personal computers on campus, through the IT revolution, up to today, where IT solutions and infrastructure are key enablers of Stellenbosch University's success. Mr Van Rooyen's dedication, strategic foresight, resourcefulness and strong leadership have had a profound impact on the smooth functioning of the Faculty and the success of our students.





## **Fakulteit** **Faculty**

Economiese en  
Bestuurswetenskappe (Groep 3)

Economic and Management  
Sciences (Group 3)

**7 April 2022 - 17:00**

**7 April 2022 - 17:00**



## Program

*Staan asseblief*

*Staan asseblief*

*Sit asseblief*

*Staan asseblief*

1. Akademiese prosesie kom die saal binne.
2. Speel van die Nasionale Lied.
3. Formele konstituering deur die Kanselier.
4. Verwelkoming deur die Kanselier.
5. Voorstelling van kandidate wat kwalifikasies ontvang deur die dekaan van die fakulteit en toekenning van kwalifikasies deur die Kanselier.
6. Sluiting deur die Kanselier.
7. Akademiese prosesie verlaat die verhoog.

## Programme

*Please stand*

*Please stand*

*Please sit*

*Please stand*

1. Entrance of academic procession into the hall.
2. Playing of the National Anthem.
3. Congregation formally constituted by the Chancellor.
4. Welcome by the Chancellor.
5. Presentation of candidates receiving qualifications by the dean of the faculty and conferment of qualifications by the Chancellor.
6. Closing by the Chancellor.
7. The academic procession leaves the stage.

# Fakulteit Ekonomiese en Bestuurswetenskappe (Groep 3) Faculty of Economic and Management Sciences (Group 3)

## DOKTORALE KWALIFIKASIES | DOCTORAL QUALIFICATIONS

### DOKTOR IN DIE WYSBEGEERTE DOCTOR OF PHILOSOPHY

**BANDA**, Raymond (Public and Development Management)

#### **A model to promote the effective use of evaluations in the South African agricultural sector**

The South African government conducts many evaluations to assess the success of its programmes. However, the findings of completed evaluations do not always seem to inform programme improvement and policy decisions. Focusing on the agriculture sector, this study applies a utilisation-focused evaluation (UFE) approach to develop a streamlined model, aligned with the South African context, to ensure that evaluation findings are used. Implementation of the model is supported by a pragmatic five-phased process, appropriate structural, accountability and system integration mechanisms, and a receptive departmental evaluation culture.

*Supervisor:* Prof B Rabie

**BUTHELEZI**, Phakamani (Public and Development Management)

#### **An analysis of South African public entity performance using biomatrix systems theory: A case of South Africa's water boards**

The performance of South Africa's water boards as public entities is increasingly important. Water boards show an inability to adhere to the South African Constitution, and fail to meet performance targets, amidst pressure due to issues such as water access, quality and quantity as well as climate change. This study evaluates South Africa's water boards in terms of systems thinking. Qualitative research is carried out with case studies of Umgeni Water, Amatola Water and Overberg Water. The study confirms the significant role of good governance, systems thinking and human resources in water services provision.

*Supervisor:* Prof Z Ndevu

*Co-Supervisor:* Prof J Bossert (*external*)

**DARTEY-BAAH**, Samuel Kwasi (Business Management and Administration)

#### **The relationship between project complexity and project success, and the moderating effect of project leadership roles in the construction industry of an emerging economy**

This study highlights pertinent issues surrounding project leadership and project complexity in an emerging economy. By developing and applying a first-of-its-kind project leadership role instrument, the study reveals that the fulfilment of project leadership roles is integral to moderating the adverse effects of project complexity on project success. In a critical contribution to the area of project leadership, the study illuminates how significant strengths and weaknesses of various leadership styles moderate the success of complex construction projects. Within the project setting, transformational and ethical leadership minimises the adverse influence of project complexity by creating conditions of trust, respect, empathy and professionalism.

*Supervisor:* Prof M de Klerk

**HACHOOFWE**, Emelda (Public and Development Management)

#### **Linking Natural Resource Governance to rural livelihoods and wildlife conservation: A case study of Mufunta Game Management area, Zambia**

Governance is as much about coordinating actors and institutions as it is about steering them. By focusing on protected-area (PA) governance structures in the Mufunta game management area of Zambia, this study explores the coordination of institutions and actors in community-based natural resource management (CBNRM). Institutions and actors can influence constraints and opportunities for sustainable livelihoods and PA conservation. Through knowledge co-production, an equilibrium model is developed, combining a "bottom-up" and "top-down" approach to improve CBNRM implementation. The study demonstrates that knowledge about how governance, livelihoods and conservation interact and affect each other is necessary to craft a sound governance approach.

*Supervisor:* Prof K Muller

*Co-supervisors:* Prof E Sjaastad (*external*), Dr VR Nyirenda (*external*)

**KAUNDA**, Nikiwe Joyce (Public and Development Management)

#### **Downward accountability and value creation: An examination of two non-profit organisations in South Africa**

Guided by the public value strategy, this study examines how the missions and operational capacities of two non-profit organisations (NPOs) enhance NPO value and accountability. Using a mixed-methods approach, the study explores respondents' understanding and practices around participation, accountability and co-creation of valued outcomes. It is established that low levels of downward accountability can be enhanced by implementing practices and strategies that offer end users opportunities to provide input to make programmes more responsive. A model for increasing downward accountability is developed, and the usefulness of the public value strategy's analytical framework in enhancing NPO governance and service delivery is confirmed.

*Supervisor:* Prof Z Ndevu

*Co-supervisor:* Prof IK Theletsane



**NKONTWANA**, Phumlani Stanley (Public and Development Management)

### **African entrepreneurship: An exploration on innovation hubs as development institutions**

This study explores 100 interdisciplinary and intradisciplinary stories of locals in Rwanda, Ghana and Kenya to make sense of innovation hubs' efforts to drive momentum and maturity in entrepreneurship across the continent. Using a narrative-based research approach through SenseMaker®, the study contributes an original account of stakeholders' experiences. The growing view is that, even though the mainstream discourse in entrepreneurship is about driving momentum and maturity across different ecosystems, local and indigenous entrepreneurs do not have a sense of control or human agency to shape the direction of African entrepreneurship towards the development outcomes they want.

*Supervisor:* Prof AP Burger

*Co-supervisors:* Dr J van Breda, Prof B Rabie

**NYANGU**, Moses Nzuki (Development Finance)

### **The dynamics and implications of market power, bank efficiency and bank risk-taking behaviour in the East African community**

This study investigates the implications of increased market power and its effect on bank efficiency, bank risk-taking behaviour and overall financial stability. Empirical findings reveal that the joint effect of market power and bank efficiency is critical for financial stability, and depends on the specific type of efficiency being explored. Increased market power is observed to have a direct positive effect on bank stability, thus lending support to the concentration-stability hypothesis. Also, concentrated banks are more efficient and stable, thus supporting the efficiency-stability hypothesis. The results present potentially important policy recommendations for bank risks, market power and efficiency.

*Supervisor:* Dr N Marwa

*Co-supervisor:* Dr A Fanta

**OOSTHUIZEN**, Kim (Business Management and Administration)

### **Artificial intelligence (AI) in retail: The AI-enabled value chain**

The study investigated how Artificial Intelligence (AI) transforms the retail value chain. First, AI transforms the linear retail value chains into circular, creating a more iterative and data-focused value chain. Second, AI shifts tasks from people to machines by fulfilling four key roles in the value chain: knowledge and insight management, inventory management, operations optimisation, and customer engagement. Third, AI is changing how retailers attain goals in the retail value chain through achieving specific outcomes such as cost-saving. Fourth, implementing AI creates complexities within retail, requiring a need to transform people, structure, technology, and tasks. This study contributes to academic discourse by broadening the understanding of how new technologies impact value chains in general and retail value chains in particular. The study also contributes to practice by providing retail leaders with a holistic view of ensuring the successful integration of AI into the business.

*Supervisor:* Dr E Botha

*Co-supervisor:* Prof M Butler

**PAKKIES**, Letsepa Promise (Public and Development Management)

### **Measuring fiscal sustainability and its determinants in South African municipalities**

This study analyses the determinants of the fiscal challenges facing South African municipalities, and assesses the sustainability of their goods and services supply. Empirical quantitative assessments of the relationship between the composition of municipal spending and the dynamics of municipal debt are performed, as well as an assessment of municipal efficiency and fiscal sustainability conditions. A quantitative research approach is followed and the data envelopment analysis model is applied. This yields sound indicators for long-term budgeting. It is concluded that municipal debt accumulation, administrative intensity, a generous employee benefit system and inefficiencies have compromised the sustainability of goods and services supply.

*Supervisor:* Prof APJ Burger

*Co-supervisors:* Prof T Ajam, Dr L Mortimer

**SMIT**, Helene Magda (Business Management and Administration)

### **An integrated framework for the development of leadership integrity in Business School students**

This transdisciplinary multi-methods study explores leadership integrity and its related constructs by means of an extensive literature review, a five-round Delphi study with at least 20 international subject matter experts per round, supplemented by focus groups and a graduate attribute questionnaire. A definition of leadership integrity is developed and later reframed as a vision of leadership integrity, in which the leader develops a moral ecology encompassing the self and the environment. The study culminates in an educational framework that describes the appropriate institutional environment and curriculum requirements to develop each of six mutually constitutive selves among Business School students.

*Supervisor:* Prof DJ Malan

*Co-supervisor:* Prof PJ Naudé

**USTARZ**, Yazidu (Development Finance)

### **Foreign capital inflows, financial development and sectoral growth in Sub-Saharan Africa**

This study examines the sectoral effect of foreign capital inflows and financial development in 44 sub-Saharan African economies over the period 1990 to 2018. The findings, which are based on a combination of panel data models, show that the impact of financial development is threshold-specific and varies across sectors of the economy. Financial development also reduces foreign capital volatility above a certain threshold. Results of the dynamic ordinary least-square model show that different inflows have unique effects on each sector. Therefore, policymakers should channel specific inflows to support growth of a sector and accelerate financial development.

*Supervisor:* Dr N Marwa

# Fakulteit Ekonomiese en Bestuurswetenskappe (Groep 3)

## Faculty of Economic and Management Sciences (Group 3)

### ANDER KWALIFIKASIES | OTHER QUALIFICATIONS

#### Magister in die Handelswetenskappe Master of Commerce

De Vlieg, Katelin Elizabeth (Public and Development Management)  
Frans, Ilse Lezaan (Public and Development Management)

#### Magister in die Wysbegeerte Master of Philosophy

Bauer, Lauren (Sustainable Development Planning and Management)  
Bent, Reginald Anthony (Management Coaching)  
Bosman, Savanna (Sustainable Development Planning and Management)  
Botha, Gideon (Futures Studies) (*cum laude*)  
Brown, Louise Maria (Environmental Management)  
Clifford, Deborah Ann (Futures Studies) (*cum laude*)  
Cupido, Anita Deline (Management Coaching) (*cum laude*)  
Davies, Liezl (Management Coaching)  
Desai, Lee-Ann Tania (Management Coaching)  
Diedericks, Christiaan Petrus (Management Coaching)  
Femi-Kayode, Nneka Janine (Management Coaching)  
Fenu, Eric (Management Coaching)  
Griffiths, Aletta (Management Coaching)  
Hagen, Bianca Louise (Environmental Management) (*cum laude*)  
Hilligan, Inge-Marie (Futures Studies) (*cum laude*)  
Hirschberg, Franz Richard (Management Coaching)  
Holeni, Khopotso Cecilia (Management Coaching)  
Hughes, Tarryn (Sustainable Development Planning and Management) (*cum laude*)  
Hunt, Robin Andrew (Management Coaching)  
Jansen, Christian Cornelius (Management Coaching)  
Kruger, George Frederik (Management Coaching) (*cum laude*)  
Kruger, Kamini (Management Coaching)  
Maruping, Teboho Salmon (Management Coaching)  
Mayer, Keziah (Environmental Management) (*cum laude*)  
Molapo, Relebohile (Sustainable Development Planning and Management)  
Mphahlele, Kgomotso Itumeleng (Management Coaching)  
Niehaus, Charles (Futures Studies)  
Nyikana, Dorothy Germinah (Management Coaching)  
Orange, Jakob (Management Coaching)  
Paterson, Margo (Sustainable Development Planning and Management) (*cum laude*)  
Rabakali, Takalani Constance (Environmental Management)  
Rozani, Akhona Somila (Environmental Management)  
Rulashe, Thabiso Spencer (Futures Studies)  
Smith, Molelekoa (Futures Studies)  
Steyl, Johannes Jacobus (Management Coaching)  
Strauss, Rolene (Management Coaching) (*cum laude*)  
Strauss, Stephanie Junitha (Environmental Management)  
Treu, Andrew John (Management Coaching)  
Troskie, Janine Nanda (Management Coaching)  
Van Heerden, Michelle (Management Coaching)  
Van Niekerk, Toni (Futures Studies)  
Van Tonder, Andries Jacobus (Futures Studies)  
Van Zyl, Wynandina Petronella Johanna (Management Coaching)  
Varghese, Elizabeth Susan (Sustainable Development Planning and Management) (*cum laude*)  
Wilson, Theresa Faith (Management Coaching) (*cum laude*)

#### Magister in die Wysbegeerte in Ontwikkelingsfinansies Master of Philosophy in Development Finance

Chegovo, Bothwell Munyaradzi  
Dhotman De Villiers St Pol, Dominique Gerard (*cum laude*)  
Dudzayi, Daina  
Haipumbu, Ndapewoshali Natalia  
Ikela, Sam Nduvundi  
Keeja, Patricia  
Maluleke, Vusi William  
Mfengwana, Yonwaba  
Mndzebele, Siphilele Thobekile  
Mofokeng, Tlaleng Andronica  
Mohulatsi, Sinah Matshidiso  
Mphake, Richard Karabo  
Msipho, Siphilwe Thembinkosi  
Mthimkhulu, Percy  
Ncube, Gugulethu Mamoeketsi  
Ndaba, Sifiso Floyd  
Ndzinisa, Phetsile  
Ngcume, Siyanda  
Nkwanyana, Nonkululeko  
Ozulumba, Ijeoma (*cum laude*)  
Pitlo, Dipitsi Ernest  
Weer, Tebogo

#### Magister in Besigheidsbestuur en -administrasie Master of Business Management and Administration

Adenigba, Joseph  
Anderson, Neil Trevor  
Andrews, Aurion Patrick  
Arendse-Trantraal, Lauren Lyrun  
Basson, Anne Petronella  
Blaauw, Ivor Carl  
Blair, Caitlin (*cum laude*)  
Böcking, Frank  
Bosman, Christiaan Jacobus  
Botha, Albertus Lambertus  
Bruwer, Pieter Burger (*cum laude*)  
Cattell, Olga Matilda  
Conradie, Pieter Jacobus (*cum laude*)  
Cronjé, Christiaan Stephanus  
Cuijpers, Rob Cornelius  
De Lange, Nicolette  
De Villiers, Jan Naudé  
De Wit, Frederick Christiaan Pieter (*cum laude*)  
Dean, Alicia Eleanor (*cum laude*)  
Diergaardt, Vincent Jaun  
Dippenaar, Tanya  
Dirkse Van Schalkwyk, Johannes Jurgens (*cum laude*)  
Dramat, Tanya  
Dube, Simbarashe Mushmabi  
Eckley, Alfred Collins  
Elliott, Shane Roy  
Enous, Zahraa  
Erasmus, Desiderius  
Ferreira, Jacques  
Foster, Lanston Joseph  
Gerber, Henre Jacobus  
Gilbert, Beverly Nonhlanhla  
Gimenez, Claudio  
Gqola, Vuyokazi Tankiso  
Hempel, Wayne (*cum laude*)  
Hendrickx, Jef  
Heynes, Edward David (*cum laude*)

Holton, Lisa Emily (*cum laude*)  
Hove, Tatenda Caston  
Isaacs, Baduroen  
Jacobs, Jan Gerhardus (*cum laude*)  
Jakoet, Nazliyah  
Jansen, Donovan  
Jansen Van Vuuren, Tiaan Jacobus  
Kathanya, Nonhlanhla  
Kellerman, Arend Paul  
Kleynhans, Theodorus Ernst  
Kruger, Johannes Lodewykus  
Landman, Jacobus Daniel Cillié  
Le Riche, Nicole Claire  
Lepota, Tumelo  
Lindenberg, Josh  
Loff, Kyle (*cum laude*)  
Lombard, Juan-Pierre  
Maass, Petrus Frederik  
Mailula, Sello  
Manne, Graeme Rubin  
Manyatsi, Sindi Masiza (*cum laude*)  
Marais, Wilhelmina Christina (*cum laude*)  
Marallich, Christo (*cum laude*)  
Masinge, Michaeline Mpho  
Masuku, Edith Prudence  
Mbaha, Vesoraune  
Mogano, Tshepo Jack  
Moodley, Nerisa (*cum laude*)  
Motse, Bongwiwe Princess  
Mumba, Vitumbiko Augeans Zsamula  
Muthu, Kugin (*cum laude*)  
Myburgh, Wilbé  
Ndlovu, Thamsanqa  
Nel, De Wet (*cum laude*)  
Nel, Morne (*cum laude*)  
Nels, Jamie-Lee Sheena  
Ngalo, Vera Sinazo  
Ngcobo, Nomvelo Phumla  
Ngidi, Sithembile  
Ngubo, Mamela  
Ntshiea, Maletsatsi  
Nyundu, Johannes Frans  
Omolo, Joshua  
Owen-Frigyik, Talia Janine  
Pahad, Seraj  
Patesi, Philasande  
Pillay, Tashweree  
Pretorius, Johannes Jacobus  
Prinsloo, Lourens Stephanus  
Pule, Saltiel  
Putzier, Quintin Dean  
Radebe, Nontsikelelo  
Rajie, Zubeida (*cum laude*)  
Ramalingam, Sathieseelan  
Ramchund, Terusha (*cum laude*)  
Ramoshaba, Bridget Tumelo Nono  
Reed, Charlene  
Roostee, Denille  
Rootman, Adriaan Cornelius (*cum laude*)  
Ruiters, Wensia Cathrene  
Schade, Johannes Petrus  
Semono, Lebogang Malokoe  
Shakong, Mpho Deborah  
Shiimbi, Lucia Evangeline Tyd  
Sibanda, Shadreck  
Sikhwari, Olga  
Singh, Nerita (*cum laude*)  
Slabbert, George Raymond (*cum laude*)  
Slatsha, Princess Nonkosi  
Snyman, Marcel Dimitri (*cum laude*)  
Sonday, Junaid  
Spangenberg, Susara Margaretha Catharina  
Steenkamp, Bonus Francois (*cum laude*)  
Theron, Pieter Daniel  
Titi, Cokisa  
Tjiueza, L'oreal Danica Golda

Tsholo, Phemelo Keolebile (*cum laude*)  
Udjombala, Ndapunikwa Ndesihafela Josefina  
Van Aarde, Adriaan  
Van Breda, Lise (*cum laude*)  
Van der Kevie, Karmi (*cum laude*)  
Van der Merwe, Willem Abraham  
Van der Westhuizen, Deon  
Van der Westhuyzen, Franck Henno  
Van Dyk, Christo  
Van Lill, Pieter Willem (*cum laude*)  
Van Rooyen, Werner Le Feuvre  
Van Schalkwyk, Johanna Madeleine  
Van Zyl, Gideon George (*cum laude*)  
Vosloo, Gerhardus Petrus Johannes (*cum laude*)  
Wessels, Lericia  
Wessels, Louis Jacobus  
White, Gys Jacques  
Zungu, Samuel Zamokuhle  
Zwane, Mafu

#### **Magister in Publieke Administrasie Master of Public Administration**

Adams, Azra Leoni  
Cornelissen, Maritjie  
Kassie-Ruplal, Kavitha  
Kgoete, Bethel Oupa  
Meyer, Ronel  
Sango, Nolubabalo

#### **Honneurs-Baccalaureus in die Handelswetenskappe Bachelor of Commerce Honours**

Ditsela, Mokome Sabrina (Public and Development Management)  
Kilala, Nadine Deryck (Public and Development Management)  
Love, Joshwin Jumario (Public and Development Management)  
Matlali, Precious Elellwang (Public and Development Management)  
Verwey, Ignatius Michael (Public and Development Management)  
Viljoen, André (Public and Development Management)

#### **Honneurs-Baccalaureus in Publieke Administrasie Bachelor of Public Administration Honours**

Bongela, Gugulethu Carnation  
Buis, Erna Catherine  
Chetty, Jayalachmy  
Dlamini, Simanga  
Dolopini, Nobuzwe Zeneth  
Fielding, Hazelene  
Fisher, Darren  
Gcotyelwa, Thulani Aron  
Grootboom, Gracious Lubabalo  
Jonathan, Donavan Lawrence  
Khosha, Mercy Mandisa  
Koti, Lukhona  
Maart, Megan  
Mahlangu, Cecil Monnanyana  
Majoro, Rearabetsoe Anacletta  
Mangweni, Nkululeko Freedom  
Marafane, Neliswa  
Marlow, Noah  
Martin, Elroy Bradley  
Matai, Bheki  
May, Samantha Evelyn  
Mbonane, Thobani Nkosinathi  
Mbontsi, Andiswa  
Mdoda, Mzimasi  
Mkontwana, Nonceba Miriam  
Mokoakoe, Lebohang Gilbert  
Mokono, Kgare Jan  
Mpondwana, Ntombozuko Theodora  
Mzinyati, Sityebi Mcdonald



Nkuna, Beauty Portia  
Ntapane, Vuyokazi  
Raditladi, Margaret Mpho  
Semelane, Hlomphe Abiel  
Shabalala, Samuel Seqoanjane  
Sikhakhane, Ntobeko  
Sithole, Simangele Yvette  
Smith, Hedley Mornay  
Van Wyk, Willem Sageus  
Vilakazi, Philip Madoda  
Wakefield, Reese Brett  
Williams, Petro Allan  
Zeeman, Vanessa Sharon

**Nagraadse Diploma in Leierskapontwikkeling  
Postgraduate Diploma in Leadership Development**

Barnard, Nicolene  
Bergsteedt, Bryan Jason (*cum laude*)  
Bertolini, Wilbert (*cum laude*)  
Bock, Mark Ronald (*cum laude*)  
Budhram, Natasha (*cum laude*)  
Chiloane, Angel Reshoketswe  
De Beer, Estelle  
Dick, Phindile Khanyisile  
Ditsebe, Catherine Mamaila  
Dlamini, Leonard Mfanufikile  
Duze, Zolile  
Hawker, Travis (*cum laude*)  
Henry, Patricia (*cum laude*)  
Koorowlay, Tasneem (*cum laude*)  
Majundana, Nondwe  
Malebo, Ntsoaki  
Mbikiwa, Fanny Neo (*cum laude*)  
Mokone, Benjamin  
Mutilitha, Ngenohasho Imanuel (*cum laude*)  
Muyamba, Wendelin Valery Shihungu  
Nkalitshana, Bhekilanga Davidson  
Phiri, Lillian Muchaneta  
Ramokone, Lebogang Dinah  
Sedio, Samuel  
Setaka, Malefetsane William  
Setlalentoa, Wendy Ntebaleng  
Sopitshi, Athenkosi  
Stoltz, Liesl (*cum laude*)  
Teleki, Thabiso Theodore  
Teta, Thokozile Anela  
Ts'Ehlana, Ntone  
Van der Walt, Freda (*cum laude*)  
Van Rooi, Saiya Power Kanuunu Ndeyapo (*cum laude*)  
Van Straaten, Laurika (*cum laude*)  
Van Wyk, Meredith Lizanne  
Viljoen, Talita

**Nagraadse Diploma in Volhoubare Ontwikkeling  
Postgraduate Diploma in Sustainable Development**

Boitumelo, Kevin Seeletso  
Bopape, Shilela Nhlamulo  
Chiume, Melody  
Fick, Wilhelm Liebrecht  
Ledwaba, Thabisile Thabang  
Marivate, Rirhandzu Anna  
Marzec-Visagie, Joanna  
McCrinkle, Emma Kay (*cum laude*)  
Misbach, Aniqah  
Ngcuka, Yandisa Luvuyo  
Pama, Ben Melle (*cum laude*)  
Volkwyn, Liza (*cum laude*)

**Nagraadse Diploma in Omgewingsbestuur  
Postgraduate Diploma in Environmental Management**

Darries, Shariefah  
Mashina, Emgard Ester Tutsomukumo

**Nagraadse Diploma in Projekbestuur  
Postgraduate Diploma in Project Management**

Ambunda, Fares Katole  
Barnard, Racquel Bernadine Juanita  
Bray, Iqbal  
Dharsey, Nuraan  
Diphoko, Nathnael Manale  
Dlamini, Mzokhona Brian  
Freyer, Franco Marcellino  
Gierdien, Qudsiya  
Jacobs, Monean Nelzaan  
Kamana, Zukiswa Patience  
Khumalo, Xolile  
Konhindi, Michael  
Lennox, Michelle (*cum laude*)  
Liedeman, Dymiun Charles (*cum laude*)  
Makasi, Africa  
Manake, Magdaline Kemothwetse Maisaka Galaletsang  
Manamela, Sarah Manoko  
Mandla, Thando  
Masondo, Sthembiso Robert  
Matlali, Lisebo Confidence  
Mkentane, Buhle  
Mkunjulwa, Khayaletu  
Moloi, Fikile Millicent  
Mrubata, Sinetemba (*cum laude*)  
Mundjele, Elifas Noag Natangwe  
Muofhe, Anda Millicent  
Musetsho, Mulanga Lorraine  
Mutambara, Tafadzwa  
Muthwa, Bukhosibakhe Protas  
Nashima, Etuwete Tulela  
Ntombela, Nkosinathi Mluleki  
Parker, Yaseen  
Raats, Wernich (*cum laude*)  
Rinquest, Abubaker  
Rostoll, David Hendrik  
Sangweni, Thembisile Prisca  
Sepeng, Percy Naledi  
Shatumbu, Johannes-Keddy  
Shidhika, Alisa Ndapandula Ndamonihuna  
Sikhipha, Rendani  
Snyman, Herman Frederick  
Theron, Quinton Jacques  
Tswane, Ziphozihle  
Van As, Lourens Gildenhuis (*cum laude*)  
Van der Westhuizen, Johannes Gysbert Christiaan  
Walenga, Helena Tashiya  
Zwane, Kagiso

**Nagraadse Diploma in Finansiële Beplanning  
Postgraduate Diploma in Financial Planning**

Du Toit, Robert  
Hamilton, Nathaneal Mark  
Myburgh, Eric  
Robey, Reece Brent  
Schwagele, Jason Alan  
Tabata, Sandisiwe Balule Silindokuhle  
Waring, Donovan Shaun

**Nagraadse Diploma in Besigheidsbestuur en  
-administrasie  
Postgraduate Diploma in Business Management and  
Administration**

Bailey, Oswald Simon  
Bath, Sarita  
Davids, Jami Leigh  
De Wit, Martha Helena  
Dini, Lucy Ntombifuthi  
Ditlhong, Obitseng Justice  
Du Plessis, Karin (*cum laude*)  
Du Plessis, Le Riche Oscar (*cum laude*)  
Fortuin, Basil



Fourie, Flamely  
Fourie, Michelle  
Govender, Roshini (*cum laude*)  
Herman, Kelvin Henry  
Hoabeb, Buruxa  
Hoffman, Derrize  
Janse van Vuuren, Deon (*cum laude*)  
Jansen van Rensburg, Ivan (*cum laude*)  
Khan, Saood (*cum laude*)  
Lamohr, Nicholas  
Lombard, David Gerhardus (*cum laude*)  
Mafenuka, Nokuthula Sweetness  
Magongo, Johannes Shetwaadha  
Malatji, Vincent Mmamokidi  
Malunga, Kwanda Reuben-Theodore  
Marais, Jan-Andre  
Mashifane, Molate Lehlogonolo Geoffrey  
McHaffie, Alexander Carswell (*cum laude*)  
Mnisi, Motselisi  
Mofokeng, Teboho Lebohang  
Mohobane, Mapalollo Ithabeleng  
Mokoena, Lehlohonolo Lucas Haig  
Moses, Royston Kyle (*cum laude*)  
Paliso, Busisiwe  
Raman, Quinton Pierre (*cum laude*)  
Saungweme, Thulani Tendai  
Sewrathan, Reshma  
Sihlwayi, Saseka  
Siyanga, Moureen Monde  
Smith, David-Dean  
Snyman, Jaco  
Sulleman, Chota  
Thaver, Tashia  
Van der Merwe, Hermanus Steyn (*cum laude*)  
Van der Merwe-Botha, Grethe Elizabeth (*cum laude*)  
Van Staden, Rico  
Venter, Hendrik Coenraad

### **Nagraadse Diploma in Toekomsstudie Postgraduate Diploma in Futures Studies**

Alli, Tasnim  
Bodibe, Neo Matibane (*cum laude*)  
Botha, Hermanus Johannes  
Bowyer, Angela Rose  
Bruns, Nicola Jo  
Burini, Angela  
Chenge Sikolo, Ziyanda  
Cook, Davis John (*cum laude*)  
Du Bazane, Ayn Lauren  
Du Preez, Izaan (*cum laude*)  
Du Toit, Gysbert Petrus (*cum laude*)  
Felder, Rene  
Goba, Lwazi Malizole Phumelela  
Grovers, Lester Graeme  
Halton, Caroline Ann (*cum laude*)  
Hieckmann, Berniece (*cum laude*)  
Hoogenhout, Kathleen  
Janse van Rensburg, Johannes Gerhard (*cum laude*)  
Johnson, Heidi Deidre  
Kave, Lutho Mlondolozu  
Kent, Allan James (*cum laude*)  
Khan, Afsana  
Khunoana, Enock Nchaupe  
King, Linda Ruth (*cum laude*)  
Leviton, Alan Adrian (*cum laude*)  
Lizwe, Mbulelo Quinton  
Madlopha, Sybil  
Matthys, Cindy-Lee  
Mckie, Alison (*cum laude*)  
Mdleleni, Pumzo  
Mngomezulu, Tiisetso (*cum laude*)  
Monahan, Jillian Barbara  
Mongale, Refilwe Mongale  
Mwaura, Natasha Esther Nguhi

Naidoo, Thirushen  
Naik, Yogambarum (*cum laude*)  
Nghililewanga, Johanna  
Nicol, Edward  
Rosochacki, Alexander  
Ruckenbrod, Marco (*cum laude*)  
Schwartz, Ilana  
September, Jo-Anne Felicia  
Shimange, Thateng Tsholofelontle  
Sikombe, Jonathan  
Simpson, Brett Millin (*cum laude*)  
Sokaloo, Mohammad Khalid Abdul Raheem  
Soomar, Basheerah  
Tloubatla, Lethabo Mamaphile  
Van der Merwe, Berdine  
Van Staden-Slabbert, Johannes Migael (*cum laude*)  
Vandeyar, Trinisha  
Vencencie, Wade Adriaan  
Von Bormann, Tatjana Marie Louise (*cum laude*)  
Wiegman, Janet (*cum laude*)  
Wudebwe, Tafadzwa

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Chelopo, Orapeleng  
Erastus, Mekondjo Set-Son  
Kumalo, Nkosazana  
Magodielo, Modisane Shia Nobantu  
Mahlati, Lindelwa Sizakele  
Malete, Mary Mmiki  
Mesa, Florence Mina  
Mhlongo, Zakhele Ntandoyenkosi  
Mkhaliphi, Thulani Edmund  
Mkhwanazi-Sigege, Sinqumile Nqobani Njongwe  
Mnomiya, Zibuyile Valentia  
Mpikheleli, Siphamandla Sivuyisiwe  
Ngema, Zukiswa Grace  
Nkomo, Sthembiso  
Ntaba Moudienguele, Aurore Jess Maryse  
Ntshovula, Anele Hendrick  
Nunda, Pesella Mathias  
Ramoethwala, Lebea Phillip  
Rantoo, Maphoka  
Sonqayi, Belinda Blossom Luleka  
Teleki, Mmule Mphshwe  
Yekanye, Sivenathi  
Zatjirua, Tuhupa

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Conforzi, Alessio Guiseppe  
Kawana, Anita  
Mahlalela, Lindelwa Nobukhosi  
Slaai, Jamy-Lee

### **Diploma in Openbare Verantwoordbaarheid Diploma in Public Accountability**

Cummings, Rushda  
Nase, Babalwa Ernestine

### **Gevorderde Diploma in Openbare Verantwoordbaarheid Advanced Diploma in Public Accountability**

Bongoza, Abedniko  
Mncube, Ntando Bongumenzi Sakhile  
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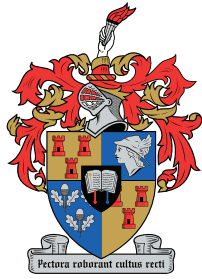
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