

**Ceremony 3**

**Friday, 11 December 2015 at 09:30**

**Vodacom NMMU Indoor Sport Centre, South Campus, Summerstrand**

***Faculty of Engineering, the Built Environment and Information Technology***

***Faculty of Health Sciences***

***Faculty of Science***





## CONGRATULATORY MESSAGE

Graduation is a momentous occasion, representing the crowning moment of all your hard work and the many sacrifices that you and your loved ones made to reach this milestone.

For us, graduation is the highlight of the university year as we witness successful students cross this stage to be capped and enter a new chapter in their lives. Each of you has a unique story to tell.

We salute and applaud your achievement and wish you all the best in your future endeavours, since your time here at the Nelson Mandela Metropolitan University (NMMU) was but a stepping stone towards your tomorrow.

We trust that NMMU has equipped you not only with an excellent academic qualification for the many challenges of life and work, but also with life-changing experiences to shape your future.

It is our wish that you will leave here today as proud NMMU graduates who will continue to champion social justice and equality, and be change agents in building a better society and a better world.

Thank you for offering us the privilege of making NMMU a part of your life. Your success is our success, and as an NMMU alumnus, we look forward to watching your story unfold.

**Congratulations!**

Ms Santie Botha  
**Chancellor**



Prof Derrick Swartz  
**Vice-Chancellor**



## **ABOUT NMMU**

Nelson Mandela Metropolitan University (NMMU) is a new generation university, distinguished by a wide range of study options and access routes open to students. With 380 programmes from certificate through to doctoral level across 200 different career fields, NMMU truly is a comprehensive university.

Founded on more than a century of quality higher education, NMMU nurtures innovation, fosters creativity, embraces technology and develops people to meet the challenges of tomorrow. NMMU is a product of a merger of the University of Port Elizabeth and the PE Technikon in 2005. Prior to such a merger, the Vista University campus of Port Elizabeth was incorporated into the former University of Port Elizabeth. The university has a strong track record of research, working extensively in partnership with business and industry, making NMMU a valued contributor to the socioeconomic development of the region and beyond.

In 2015, the university had 26 347 students and close to 4300 permanent and contract staff, based on six campuses in Nelson Mandela Bay and George.

### **Leaders**

NMMU's Vice-Chancellor is Professor Derrick Swartz, the Chancellor is Ms Santie Botha and the Chair of Council is Judge Ronnie Pillay.

### **Location**

Five of NMMU's campuses are in Nelson Mandela Bay and one is in George on the Garden Route. The six campuses are:

- South Campus in Summerstrand (within a 720-hectare private nature reserve)
- North Campus in Summerstrand
- Second Avenue Campus, home to the new "green" Business School, in Summerstrand
- Bird Street Campus which will be a new postgraduate arts hub in Central
- Missionvale Campus in Missionvale
- George Campus in George

### **Facilities and supportive teaching and learning environment**

NMMU is privileged to have outstanding facilities. All students have access to well-equipped laboratories, some of which are open 24/7, and free Wi-Fi throughout all its campuses. All the lecture halls are equipped with the latest technology and students have the opportunity of using additional e-learning tools online. The campus libraries and information services network offers a state-of-the-art integrated online system. There are cafeterias, food courts and coffee shops.

A range of opportunities are provided to enhance the academic success of students. These include a first-year orientation programme, peer-facilitated learning opportunities (eg, Supplemental Instruction, e-PAL, tutorials, practicals, mentor programmes, 'Keys to Success' workshops and online resources). NMMU also promotes both in and outside of the class learning to enhance holistic student development. To recognise the learning that takes place outside of the class, NMMU has developed an innovative, electronic co-curricular record system.

The University do also offers the finest sporting facilities in the Eastern Cape and numerous venues for conferences, meetings and other special events.

### **Faculties**

NMMU has seven faculties. They are:

- Arts
- Business and Economic Sciences
- Education
- Engineering, the Built Environment and Information Technology
- Health Sciences
- Law and
- Science

### **Academic focus areas**

Though NMMU prides itself on its vast range of programme offerings, it has a number of strategic areas in terms of its core business of teaching and learning, research and engagement. They are:

- Health and wellness
- Economic and business development with a focus on job creation and entrepreneurship
- Materials and process development for industry and manufacturing
- Emerging information and communications technology for development
- Environmental and natural resource management
- Culture, communication and language
- Leadership, governance, democracy and justice
- Educational development in support of excellence in teaching, learning and curriculum
- Infrastructure and human settlement development

### **Strategic research areas**

- Biodiversity conservation and restoration
- Coastal marine and shallow water ecosystems
- Cyber citizenship
- Democratisation, conflict and poverty
- Earth Stewardship Science
- Health and wellbeing
- Humanising pedagogies
- Manufacturing technology and engineering
- Nanoscale characterisation and development of strategic materials
- Science, Mathematics and Technology Education for Society
- Strategic energy technologies
- Sustainable human settlement development and management
- Sustainable local economic development

### **Research and Engagement entities**

NMMU has 30 focused institutes, centres and units that exist over and above the formal academic structures that are aimed at promoting research, technology transfer and innovation. They include the likes of InnoVenton, NMMU's Institute for Chemical Technology and Downstream Chemicals; eNtsa, an institute that focuses on seeking solutions through engineering and AEON - Earth Stewardship Science Research Institute (ESSRI) and an Institute for Coastal and Marine Research. Many are award-winning entities. The University also has a further 12 engagement institutes, centres and units and two clinics serving society in various initiatives.

### **'Green' endeavours**

In line with its value of respect for the natural environment, NMMU is involved in a large number of "green" initiatives that will not only reduce its own carbon footprint but is also assisting others in seeking renewable energy resource solutions. The university's new Business School, for example, was the first in the country to be awarded four-star "green" accreditation for a public and education building by the Green Building Council of South Africa in 2013. The "green" agenda is supported by the Centre for Renewable Energy, which is recognised as a research leader in the field.

### **International links**

Just over 8% of NMMU's student body comes from 64 different countries outside of South Africa. The Office for International Education fosters relationships and manages inter-institutional linkages to enrich both NMMU staff and students. These partnerships also foster our growing research. NMMU regularly sends students abroad.

### **Reasons to be proud:**

- NMMU's diversity and multiculturalism. Our African students alone come from 34 countries on the continent.
- The High Resolution Transmission Electron Microscopy (HRTEM) Centre, which opened in 2011, is the only place in Africa where scientists can view atoms in line with NMMU's growing prominence for nanoscience.
- More than 40% of NMMU academic staff have doctoral degrees when compared to the national average of 33%.
- New infrastructure like the iconic Engineering block on North Campus and the new Human Movement Science Building complete with a 100m research sprint track on South Campus.
- NMMU has excellent links with industry and business, particularly within the pharmacy, tourism and automotive industries.
- NMMU's ongoing education partnership with Fifa, as one of only two presenters in Africa of an international sports management programme through the Centre International d'Etude du Sport (CIES).
- The success of being the first student racing team from Africa to successfully compete in the Formula Student event in Germany. NMMU students designed and built a racing car to exacting specifications.
- The university was selected in 2012 to facilitate the country's first electric e-mobility programme and technical centre, called the uYilo e-mobility programme.
- NMMU has extensive expertise within the field of friction processing which has resulted in numerous national awards for the patented technology, WeldCore®. This technology has also aligned the strategic partnership between NMMU and Eskom.
- NMMU's accounting and pharmacy students who continue to produce top results in their national external examinations.
- NMMU's international award-winning choir which continues to perform around the globe to wide acclaim.

## **ACADEMIC DRESS**

Special academic attire was designed for office bearers at Nelson Mandela Metropolitan University to be worn at prestigious academic events like graduation.

Each outfit – from that of the Chancellor and Vice-Chancellor to those of the Executive Deans – has been especially selected to signify a particular office, in keeping with attire worn by academics at leading universities throughout the world.

The gowns, caps and hoods of NMMU graduates were similarly inspired and are explained in detail below.

### **Academic dress for graduates at NMMU is as follows:**

#### **Doctoral degrees**

**Gown:** Cardinal red polyester cashmere gown with long pointed sleeves pleated up with blue cord and button and lined with blue satin with 125mm facings and a blue collar.

**Hood:** Full shape hood in cardinal red polyester cashmere lined with faculty colour satin and edged around the cowl with 75mm faculty colour ribbon with 15mm blue ribbon overlaid central. 50mm wide straight neckband in cardinal red polyester cashmere, 25mm faculty colour ribbon in centre of neckband with 15mm blue ribbon overlaid central to faculty ribbon.

**Cap:** Round doctor's bonnet in black velvet with faculty colour cord and tassel.

#### **Master's degrees**

**Gown:** Black gown, long pointed sleeves pleated up with blue twisted double cord and button. Similar cord detail is used.

**Hood:** Full shape blue hood lined faculty colour satin and edged around the outside of the cowl with 75mm faculty colour with ribbon. 50mm straight neckband in blue with 25mm faculty colour ribbon centred.

**Cap:** Black mortarboard with blue tassel.

#### **Postgraduate diplomas**

**Gown:** Black gown, long pointed sleeves pleated up with blue twisted double cord and button. Similar cord detail.

**Hood:** Blue simple shape hood lined silver grey satin. Straight neckband with 15mm faculty ribbon on top edge of neckband and around cowl. 15mm silver grey ribbon on bottom edge of neckband and around cowl spaced 20mm away from the faculty colour.

**Cap:** Black mortarboard with blue tassel.

#### **Bachelor honours degrees**

**Gown:** Black gown, long pointed sleeves pleated up with blue twisted double cord and button. Similar cord detail.

**Hood:** Blue simple shape hood lined silver grey satin with 50mm wide straight neckband in faculty colour. Cowl edged 75mm faculty colour ribbon on the outside. 15mm silver grey ribbon runs along the outer edge of the cowl, overlaid on faculty ribbon and on top edge of neckband.

**Cap:** Black mortarboard with blue tassel.

#### **Four-year bachelor's degrees (including Bachelor of Technology degrees)**

**Gown:** Black gown, long pointed sleeves pleated up with blue twisted double cord and button. Similar cord detail.

**Hood:** Blue simple shape hood lined silver grey satin with 50mm wide straight neckband in faculty colour. Cowl edged 75mm faculty colour ribbon on the outside. Silver grey cord runs along the outer edge of the cowl, overlaid on faculty ribbon and on top edge of neckband.

**Cap:** Black mortarboard with blue tassel.

#### **Three-year bachelor's degrees**

**Gown:** Black gown, long pointed sleeves pleated up with blue twisted double cord and button. Similar cord detail.

**Hood:** Blue simple shape hood lined with silver grey satin with 50mm wide straight neckband in faculty colour. Cowl edged 75mm faculty colour ribbon on the outside.

**Cap:** Black mortarboard with blue tassel.

### **Advanced diploma**

**Gown:** Black gown, long pointed sleeves pleated up with blue twisted double cord and button. Similar cord detail.

**Hood:** Blue simple shape hood lined with silver grey satin with 50mm wide straight neckband. 15mm faculty colour ribbon on top and bottom of neckband around cowl.

**Cap:** Black mortarboard with blue tassel.

### **Diploma**

**Gown:** Black gown, long pointed sleeves pleated up with blue twisted double cord and button. Similar cord detail.

**Hood:** Blue simple shape hood with 50mm wide straight neckband. 25mm faculty colour ribbon on centre of neckband.

**Cap:** Black mortarboard with blue tassel.

### **Faculty colours**

Arts:	Yellow
Business & Economic Sciences:	Plum
Health Sciences:	Apple green
Law:	Grey blue
Education:	Orange
Science:	Dark green
Engineering, the Built Environment and Information Technology:	Light blue
Business School	Black and magenta

**Messrs T. Birch & Co (Pty) Ltd and its subsidiary, Croft Magill & Watson (Pty) Ltd, have been appointed as official robe-makers to the University and as contracted suppliers of choice to students for graduation academic attire.**

The Image Factor has been appointed as the official photographer of the University.

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## **SUMMER GRADUATION CEREMONIES: DECEMBER 2015**

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### **Ceremony 1 – Thursday, 10 December 2015 at 09:30**

#### ***Faculty of Business and Economic Sciences***

Bachelor of Technology, Honours, Master's and Doctoral degrees

#### ***Faculty of Arts***

Master's and Doctoral degrees

#### ***Faculty of Law***

Master's and Doctoral degrees

### **Ceremony 2 – Thursday, 10 December 2015 at 14:30**

#### ***Faculty of Education***

Bachelor of Education, Bachelor of Education Honours degrees,  
Postgraduate Certificate in Education, Master's and Doctoral degrees

### **Ceremony 3 – Friday, 11 December 2015 at 09:30**

#### ***Faculty of Science***

Bachelor of Technology, Honours, Master's and Doctoral degrees

#### ***Faculty of Engineering, the Built Environment and Information Technology***

Bachelor of Technology, Master's and Doctoral degrees

#### ***Faculty of Health Sciences***

National Diplomas: Environmental Health; and Radiography (Diagnostics)

Bachelor of Technology degrees: Biomedical Technology; Environmental Health; and Radiography (Diagnostics)

Master's and Doctoral degrees



## **OFFICE-BEARERS OF THE UNIVERSITY**

### **CHANCELLOR**

MS S BOTHA: BEcon (Economics & Marketing), BEconHons (Marketing)(Stell)

### **CHAIRPERSON OF COUNCIL**

JUSTICE R PILLAY: BA, LLB(UDW)

### **VICE-CHANCELLOR**

PROF DI SWARTZ: BA(UWC), MA, DPhil, Doctor in Human Rights Law (hc)(Essex University, UK)

### **DEPUTY VICE-CHANCELLOR: INSTITUTIONAL SUPPORT**

DR SW MUTHWA: BA(SW)(Fort Hare), BA(SW)Hons(Wits), MSc(Social Policy and Planning in Developing Countries), PhD(London University, UK)

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

PROF AWR LEITCH: BSc, BScHons, MSc, PhD(UPE)

### **DEPUTY VICE-CHANCELLOR: TEACHING AND LEARNING**

PROF DM ZINN: BA, BAHons, HDE(UCT), MEd, DEd(Harvard, USA)

### **EXECUTIVE DIRECTOR: FINANCE**

MR MR MONAGHAN (ACTING): BCom(UPE), BComHons(UNISA), Professional Accountant(SA)

### **EXECUTIVE DIRECTOR: HUMAN RESOURCES**

DR GW PAUL: BA, HDE(UWC), BTech HRM (TSA), MTech HR, DTech HR(NMMU)

### **REGISTRAR**

DR F GOOLAM: BSc, HDE, BEd, MEd(UDW), PhD(UP)

### **PRESIDENT OF ALUMNI ASSOCIATION**

MR R JONAS: BA(UWC), HDE, BAHons(Unisa), MA(UPE)

### **EXECUTIVE DEANS OF FACULTIES:**

#### **ARTS**

PROF MJR BOSWELL: BSocSc, BSocSc(Hons), MSocSc (UCT), PhD (Vrije Universiteit, Amsterdam)

#### **BUSINESS AND ECONOMIC SCIENCES**

PROF NJ DORFLING: BCom, BComHons, BEd(Ter)(UPE), MBL(Unisa), PhD(Stell)

#### **EDUCATION**

DR SF MOENG: BA, HDE, BEd(Hons)(UPE), MSc in Curriculum and Instruction(St Cloud State University), DEd(NMMU)

#### **ENGINEERING, THE BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY**

DR OSW FRANKS: BSc MechEng, MInd Admin(UCT), Hons (B&A)(US), PhD (Engineering Science) (USF - USA), GCC Mines & Works, Pr Eng

#### **HEALTH SCIENCES**

PROF HV EXNER: BChD(Pret), MSc Dent Sc(Stell), PhD(Medunsa), DHA(Dent)(Pret), EDP(Stell)

#### **LAW**

PROF A MUKHEIBIR (ACTING): BMus(UPE), HDE(UNISA), BA(Hons)(UNISA), BJuris(UPE), LLB(UPE), DJuris(Amsterdam)

#### **SCIENCE**

PROF CW McCLELAND (ACTING): BSc, BScHons, MSc, PhD (UPE)

#### **DEAN OF TEACHING AND LEARNING**

PROF CD FOXCROFT: BA, BAHons, MA, DPhil(UPE)

#### **DEAN OF STUDENTS**

MR M NCAPAYI (ACTING): BA, BA Hons (UFH), BAHons (UPE), MA (LR & HR) (NMMU)

## **ORDER OF PROCEEDINGS**

### **ENTRANCE OF ACADEMIC PROCESSION**

*(The congregation is requested to rise while the academic procession enters the hall)*

### **MOMENT OF SILENCE**

Director: Marketing and Corporate Relations  
*(The congregation is requested to remain standing)*

### **CONSTITUTION OF CONGREGATION AND WELCOME**

Vice-Chancellor  
*(The congregation is requested to be seated)*

### **AWARDING OF QUALIFICATIONS**

Vice-Chancellor

### **DISSOLUTION OF CONGREGATION**

Vice-Chancellor

### **NATIONAL ANTHEM**

*(The congregation is requested to stand for the singing of the National Anthem)*

### **DEPARTURE OF ACADEMIC PROCESSION**

*(The congregation is requested to remain standing until the academic procession has left the hall)*

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## **INFORMATION TO MEMBERS OF THE CONGREGATION**

*Members of the congregation are requested:*

- *To rise and remain standing while the academic procession enters and leaves the hall.*
- *Not to leave the hall before the end of the ceremony.*
- *To switch off cellular phones.*
- *Not to move around in the hall.*
- *Not to eat and drink in the hall.*
- *Not to get up and take photographs during the ceremony.*
- *To limit cheering and ululating to a minimum.*



The words **Cum Laude** indicates in the text below that the diploma or degree is awarded with distinction to the candidate/s listed.

## FACULTY OF HEALTH SCIENCES

### NATIONAL DIPLOMA: ENVIRONMENTAL HEALTH

APRIL, Ntomboxolo

FICA, Xolile

JIBA, Banele

LAMANI, Maxhosa

MANGE, Ntombikayise

MANGQISHI, Sibabalwe Asiphe

MATSHOBA, Nande Zesipho

MBASHE, Zingisa

MHLIFILI, Ayanda

MKHUMBINI, Likhona

MUDOGWA, Ronewa

NABELA, Zizipho

NDAMASE, Fika

NDAMASE, Sipho

NDANDANI, Athenkosi Bonginkosi

NDLETYANA, Loyola Esethu Zintle

NDZABE, Lubabalo

NGIBE, Asive

NKUKWANA, Talita Tabata Tabita

NXITYWA, Afrika

NYANGINTSIMBI, Cwayita Intinatte

PIKELELA, Zimbini

PRINCE, Michael-John Marthinus

SANDLA, Anita Zamathuse

ZEKANI, Sanelisiwe

ZENZWA, Sandisiwe

### NATIONAL DIPLOMA: RADIOGRAPHY: DIAGNOSTIC

BARRY, Dane Bruce

BHANI, Bongwiwe Wendy

CHAMBERLAIN, Nadene Melita

HOCH, Sinique

JONES, Daniël Nicola

KUSE, Siphesihle

LEWIS, Candice

MADIBA, Siphamandla

MAGIJANA, Anelisa

MARANTI, Nokulunga

MASE, Thembakazi

MBULWANA, Babalwa Theodora

MJALI, Elinamandla Sisipho

MKHABELA, Lethuk'Thula Trudy

MKOLO, Nozuko

NDZIMANDE, Phatheka Pearl

NKOSINKULU, Xolani

OOSTHUIZEN, Elzette

PASMORE, Mickela

SCHARNECK, Ryan Kyle

SEPTEMBER, Enerize

VAN HEERDEN, Linda Ann

WATANI, Yolanda Azola

WILSON, Logan Britney

#### **CUM LAUDE**

BOTHA, Natasja Nicole Krystle

MANELI, Aviwe

MTWAZI, Masixole

PIENAAR, Marizanne

### BACHELOR OF TECHNOLOGY: BIOMEDICAL TECHNOLOGY

BAARTZES, Megan Monique

BETANA, Zukile

GODSON, Chesna Terry-Lee

JASSI, Chikondi

KADANGWE, Patrick

KALAMBO, Enfred Gaius

KAWONGA, Edson

MAKALA, Lizeka

MHONE, Thomas Gabriel

MULLER, Rigardt Hermanus

NTSUKA, Bantu

PACKER, Kathleen

SEDA, George

SHOZI, Noxolo Sibongeleni

SISWANA, Bongwiwe

TAFIRENYIKA, Alexio

THERON, Jessica Rae

#### **CUM LAUDE**

ACKERS, Cindy Lee

BANDA, Edna

DE DONCKER, Farah

FINNIS, Deverdene Melandre

MONTGOMERY, Anja

NGQOKOLO, Zimasa Portia

SIBI, Zandile

### BACHELOR OF TECHNOLOGY: ENVIRONMENTAL HEALTH

BINGWA, Skolisiwe Lisolam

GUMBO, Ngoni

HAMILTON, Kirsten Jo-Ann Danielle

JACOBS, Nathan Elmar

KELAOTSWE, Winani

KGENGWENYANE, Kago

KOLELE, Thandeka Mirriam

KUMWENDA, Nelson

LINGANISO, Aphenidule

LOUIS, Logan Simone

LUCANDO, Aseza

MANELI, Mzukisi Kevin

MAREE, Jaco Christoffel

MATITA, Linda

MAVUNDLA, Thembinkosi

MKETSU, Siphokazi Sonwabe

MOLO, Siphokazi

MTSHIDI, Lusanda

NOBEBE, Sibongile

NOTUNUNU, Sinovuyo Qaqamba

NTOBELA, Nomvelo Pedegree  
PUBA, Sinazo  
SIZIBA, Anele  
TSILI, Bongiwwe  
VISSER, Melissa  
VISSER, Werner Hugh

ZITO, Thamsanqa Sydney

**CUM LAUDE**

ABRAHAMS, Sumaiyah  
MBAMBE, Jongikhaya

**BACHELOR OF TECHNOLOGY: RADIOGRAPHY: DIAGNOSTIC**

BALEKA, Sibongiseni Nangamso  
CAMPHER, Vernolia  
CEKESHE, Shirley  
HUNT, Kelly Ann  
LINDI, Thumeka  
MLONZI, Michelle  
MOYO, Anelisa  
NCOBO, Busisiwe Theodora

NIKSCH, Chloe  
PEARCE, Chrystal Margaret  
QUNTU, Bulelwa Babalwa Theodora  
VAN EYK, Emmelise  
VORSTER, Geddes Augusta  
VORSTER, Liandri  
WATERS, Nicolene  
WILLEMSE, Rojuane Tarin

**FACULTY OF ENGINEERING, THE BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY**

**BACHELOR OF TECHNOLOGY: CONSTRUCTION MANAGEMENT**

BARNARD, Morne  
BOOI, Ziyanda Anelisa  
BRITS, Kester  
COX, Dane River  
DOLO, Makoma Naum  
DOUWS, Xolela Shaun  
FLEPU, Mpumzi  
GOSA, Mtunzi  
HORN, Pierre Eskin  
JONCK, Marco  
JOYI, Yanga  
LISHER, Bradley Shawn  
LYNCH, Nicholas Conway  
MARAQANA, Nkosinathi Emmanuel  
MARTIN, Anthony Ian  
MATINISE, Sisipho Thubelihle  
MBOXELA, Sinesipho  
MCCAY, Warren

MNDZE, Chulumancani  
MNYIPIKA, Andisiwe  
MOMOZA, Onesimo  
MULDER, Devan David  
MXAKA, Siyanda Lwazi  
NAKETSANA, Tshireletso  
NORTJE, Jacques Henri  
PRINSLOO, Ruan  
SALUKAZANA, Zethu Zonke  
SICWEBU, Mvelo  
SUMNER, Sinclair  
WALLACE, George

**CUM LAUDE**

MEY, Ian  
NEMUTANDANI, Tshimangadzo Mulisa

**BACHELOR OF TECHNOLOGY: ENGINEERING: CIVIL**

LANGEVELD, Jason Leroy  
MNGENI, Amanda

NGQUNGQU, Yonela  
XABA, Nzolo Luniko

**BACHELOR OF TECHNOLOGY: ENGINEERING: ELECTRICAL**

BHEME, Nobuzwe  
BOOYSEN, Nathan Eugene  
CHIVASA, Tashinga  
DLULANE, Lindokuhle  
FIKILE, Siviwe  
GONDA, Nyasha  
GOQWANA, Tembakazi  
GRIMSEL, George Harold  
GUGA, Zukisa Jeremiah  
HAIGH, Jeshurun William  
HERSELMAN, Lesley Wayne  
HLOMENDLINI, Bubele Samuel  
MBAMBISO, Asekho  
MBUNDWINI, Ntombehlubi  
MGAGA, Luntu Siphelo  
MJINDI, Lizo Mayenziwe

MZOBE, Simphiwe  
NDLOVU, Webster  
NYENGANE, Sizwe  
O'REILLY, Clynn Rick  
RIBISI, Edwin Tebogo  
VAN ECK, Anton Eugene  
VENA, Bulumko  
WILLIAMS, Felicia Sharleen  
ZOYA, Lulama Robert

**CUM LAUDE**

BOTHMA, Jacques Ivan  
BUGINGO, Sharhts Siima  
MANGISAI, Ashton Anesu  
MVINDI, Tafadzwa Amos

## **BACHELOR OF TECHNOLOGY: ENGINEERING: INDUSTRIAL**

ANDREWS, Catherrinne Rosanne Marie  
ANDRIES, Dini  
GIYOSE, Sive  
GXAMZA, Mlondolozzi William  
HORNER, Lawrence Gregory Cooper  
JABANE, Sanelisiwe Mtikazi  
KANYEBA, Kazadi Gracia  
MAJAMANA, Nwabisa  
MAKAKAVHULE, Thendo  
MOLLER, Francois Andries  
NCAPAYI, Thando  
NGENE, Siphon Lelethu

NOBEBE, Kaya  
RAMPFUMEDZI, Rannwaneni Murendeni  
ROSS, Paul Desmond  
SIGCU, Salizwa  
TELEKISO, Fezekile  
TSOGANG, Aobakwe Gabriel  
VAN WYK, Arnoldus Christiaan Vlok  
ZOKO, Sive

***CUM LAUDE***

VIVIERS, Frederik Johannes

## **BACHELOR OF TECHNOLOGY: ENGINEERING: MECHANICAL**

BADENHORST, Martin Wessel  
BROWN, Ashraf  
DAMBUZA, Sakhumzi  
DE SILVA, Damascene Felix  
DOUSE, Boswell Lungisa  
DU PREEZ, Juan-Pierre  
ECKERSLEY, Dayle Ashley  
FISH, Matthew Leon  
GRUNDLINGH, Eden  
GUSHA, Sandile  
JIYANA, Akhona Lwando

KOK, Hercules Louwrens  
MATHONSI, Lwazi Knowledge  
OCHOLA, Edward Bond  
SEBASTIAN, Haarin Emmanuel  
THORNBORROW, Heath Nigel  
VERMAAK, Natalie  
WILLIAMS, Lyle Eldred

***CUM LAUDE***

VERMEULEN, Phillip Haefele

## **BACHELOR OF TECHNOLOGY: INFORMATION TECHNOLOGY (COMMUNICATION NETWORKS)**

BONTHUYS, Jaryd Lee  
CHANGFOOT, Graham Tjaart Isaac  
CHRISTIAN, Christo Alex  
COETZEE, Brent James  
DE LANGE, Hugo Carel  
DE SOUZA, Jaunita  
JAFTHA, Cirian Dane  
JOHNSON, Jarryd Matthew  
JONAS, Jason Wayne  
KUNENE, Motshidisi Pamela  
LINDA, Lwando Chris  
MAFHARALALA, Mavhungu Marvin  
MANGXOLA, Sihle  
MATEWU, Xabiso  
MATOBELA, Omega

MATUTU, Ziphozihle  
MBADU, Lindile  
MVELI, Promise  
NGEMA, Sipehelelisiwe Nonsikelelo  
NIEMAND, Bartho  
NTENETYANA, Philiswa  
PETERS, Keenan Marc  
RHEEDER, Leon Albertus  
SMITH, Kyal Gregory  
SOMAZEMBE, Zimkita  
SPECKMAN, Timothy Harambee

***CUM LAUDE***

YEKELA, Odwa Siphokuhle Alfred

## **BACHELOR OF TECHNOLOGY: INFORMATION TECHNOLOGY (SOFTWARE DEVELOPMENT)**

BALASANE, Lunga  
BOLOTI, Babalwa  
BOOYSEN, Christiaan Frederik  
BREDENHANN, Eduard Willem  
CARD, Courtney-Dean  
CONJWA, Sivatho Sikhumbuzo  
COOPOOSAMY, Grant Steven  
DANSTER, Mziwoxolo Johnston  
ESTERHUYSEN, Evan Ettiene  
ESTERHUYSEN, Tiaan Eugene  
EYANGANYA, Regine Mahele  
FREDERICKS, Damian Todd  
GLENISTER, Michael J Hepburn  
GOVA, Kanyisa

JARVIS, Jason Hyde  
KABENI, Abongile  
LE ROUX, Clement Dominique  
MABUZA, Ngcebo  
MALATJI, Webber Kobedi  
MASHWABI, Tsholfelo Gloria  
MBAIMBAI, Ndivhuwo Japhta  
MBHIZA, Masiza Gabriel  
MCOPELA, Sinekhaya  
MOKOTHAMA, Masego Matshidiso  
MPONGWANA, Luyanda  
MUZENDA, Pasipanodya  
NDYALUVANE, Odwa  
NELSON, Sinead Kim

NENZANI, Esethu Antonio  
NKWEBE, Zukisa  
NOBEBE, Antonia  
NOGANTA, Avela Blossom  
NOJOZI, Yondela  
PIERRE BERNARD, Jeremy Toky Ramarosaona  
PIET, Malibongwe  
POSWA, Lizo Gcobani  
PRINGLE, Stuart Patrick  
SIZIBA, Mziyanda  
SLANGVELD, Nomaxabiso Babalwa  
SPEELMAN, Sinethemba Ernest  
SPINKS, Peter John  
TSHWEZA, Akho  
VAN DE HAAR, Louise Helen

VAN DYK, Jeandre  
VAN VUUREN, Nardo  
WEPENER, Marno  
WILLIAMS, Radhiyah  
ZEPE, Xolile Michael

#### **CUM LAUDE**

DE LANGE, Gerhard Nicholas  
LEACH, Robin  
LOUW, Jason Llewellyn  
MDZOYI, Lihle  
SIMAYI, Siyolisile  
SKINNER, Sean Southey  
WEST, Warren Thomas

### **BACHELOR OF TECHNOLOGY: OPERATIONS MANAGEMENT**

ANDREWS, Riaan Rhine  
BAARTMAN, Mninawa Matthews  
BEUKES, Bedford  
BOMELA, Odwa  
BOSCH, Ian Newton  
BOUAH, Craig  
COETZEE, Wendyll  
DYAN, Simthembile  
GERBER, Ryno  
GOVENDER, Vernon Perumal  
KULA, Thabo  
MADASI, Lunga Brian  
MAHLABA, Sicelo Charles

MAKHOPA, Nandipha Cynthia  
MEIRING, Cornelius Johannes  
MJEKULA, Vuyeka  
NTANDANE, Anelisiwe  
NXALA, Mhlangabezi  
REED, Ferdi  
SMITH, Hypachia Surette  
TATA, Samela  
TIERVLEI, Renee  
TIMAKWE, Lundi  
TWALINGCA, Doctor  
VAN DER MERWE, Gregory Shaun  
ZOKUFA, Tamsanqa Precious

### **BACHELOR OF TECHNOLOGY: QUALITY**

DLULANE, Mphumzi  
DUDA, Zodwa  
ERASMUS, Natasha  
FOBE, Mbulelo  
HEUNIS, Wouter  
ISAACS, Moegamat Ganief  
JEZILE, Sindiswa  
LUVALO, Matewu Bongile  
MAZIBU, Loyiso Mandisile Simphiwe  
MPAFA, Nopiwe Sylvia  
MTSHEMLA, Yolanda Zamahlubi  
MVUNYISWA, Mzwandile Pescot  
NDUCUSHE, Lulama  
NDZAWOMBI, Mentor Aphiwe  
NJOKWENI, Zwelethemba  
NKAYI, Mmiselo

NTUNGWANA, Fikiswa  
NZIMANDE, Zandile Precious  
PAULS, Patricia Ann  
PETRUS, Alberto Jimmy  
QUMA, Zimkita  
SIMOYI, Ncebakazi  
SINYANYA, Siyabulela  
SWARTBOOI, Honest Bulumko  
WEBER, Willi  
WHITE, Samantha Rosemary

#### **CUM LAUDE**

OTT, Melinda  
ZAZA, Thokozani

### **BACHELOR OF TECHNOLOGY: QUANTITY SURVEYING**

BARNARD, Neil Brian  
BENN, Timothy Patrick  
CAPTAIN, Siphenkosi Michelle  
DYOMFANA, Sonwabile  
DYWILI, Siyabulela  
FUTSHANE, Camagu Siyamcela  
HEFER, Jaco  
HOPGOOD, Ross Cuyler  
JAFTA, Aseza  
JONKER, Juan-Pierre  
KIDSON, Camble Norman  
KNOETZE, Anton Gideon  
KOUTSOUDIS, Chris Takis

MAGIDA, Siyalizwa  
MANTYI, Thembela  
MARAMBANA, Nobulali  
MARSHALL, Lloyd James  
MATHIAS, Lengau Mac-Donald  
MBASA, Vuyokazi  
MBETE, Chumani Ndondomzi  
MEI, Wanda Ukhona  
MJUZA, Chwayita Aviwe  
MOKHOJANE, Khomotho Nester  
MONTGOMERY, Jason William  
NDLEBE, Sikuvile  
NEILSON, Stuart Peter

NOGODI, Yonela  
POOLEY, Sean Robert  
TERBLANCHE, Erhard  
TSHEKETSHE, Alungile  
VAN LOGGENBERG, Elanre Deon  
VAN RENSBURG, Tessa Danielle  
XESI, Xolelwa Ntombizonke  
ZOTHE, Asandile

### **CUM LAUDE**

BOOI, Bonga Sivuyisiwe  
GERRYTS, Anya  
LISTER, Jonathan Charles  
MAPUKATA, Phumela  
MBANGA, Abulele Zakhe  
TERBLANCHE, Jarryd

## **FACULTY OF SCIENCE**

### **BACHELOR OF TECHNOLOGY: AGRICULTURAL MANAGEMENT**

BUTHELEZI, Mukelani Sibusiso  
CHILOANE, Mduduzi Richard  
DIKO, Avela Tando  
GAJANA, Wonga  
GOVENDER, Jeevini  
GWACELA, Balungile Nokwazi  
GWAYI, Pakama  
GWAYISE, Zodidi  
HONONO, Khaya  
JAMNDA, Unathi  
KEY, Nozuko  
KHANYILE, Ayanda Cynthia  
KHEBENZI, Khululwa  
KWEBA, Bahle Balungile  
LEKOATI, Lebohlang  
MACINGWANE, Akho Anele  
MAGUBANE, Lindani  
MAQANDA, Sikho  
MASIKO, Banele  
MKHIZE, Sizwe Trevor

MSHIYO, Yandisa  
NDIMA, Thandile  
NGCAKANI, Mpendulo  
NGCUZANA, Gerald Sikhumbuzo  
NGQOTHENI, Thabo Jackson  
NGUBELANGA, Enock Siphatho  
NHLEKO, Mthokozisi Sipelele  
NKWINIKA, Shihamariso Victor  
NODUDE, Siphokazi  
NONGOGO, Chumani Robert  
NSIBANDE, Nonkululeko Khululiwe  
NTUNJA, Lwanele  
NTUNTWANA, Chuma  
OLIVIER, Esmeralda  
SIBANGULA, Mawuludi  
SIPHUNZI, Zukisani  
SIXASO, Zikhona  
VALLY, Mohammed Irshaad  
VILAKAZI, Paul Sithembiso  
YEKI, Precious Nomantande

### **BACHELOR OF TECHNOLOGY: GAME RANCH MANAGEMENT**

ODENDAAL, Riaan Dirk  
STOLTZ, Juan

### **CUM LAUDE**

HALVEY, Andrew Lloyd

### **BACHELOR OF COMMERCE HONOURS**

DAVIDSON, Luke Andrew  
*(Information Systems and Business Management)*  
XOTYENI, Xhanti Mpilo *(Mathematical Statistics)*

### **CUM LAUDE**

RAGA, Larissa  
*(Computer Science and Information Systems)*

### **BACHELOR OF SCIENCE HONOURS**

AGBAKOBABA, Victor Chike *(Chemistry)*  
ANNEAR, Dale John *(Microbiology)*  
BEKKER, Zandri *(Botany)*  
BEYERS, Kevin James *(Computer Science)*  
BISSCHOFF, Jayde *(Geology)*  
  
BRADLEY, Nicholas Craig  
*(Geographical Information Systems)*  
DE KLERK, Walter *(Geology)*  
DIDLOFF, Jenske *(Microbiology)*  
ELLINGSON, Richard *(Computer Science)*  
GREGORICH, Carly Danielle *(Zoology)*  
HARRIS, Dylan Anthony  
*(Geographical Information Systems)*

HECHTER, Johannes Petrus Du Plessis  
*(Environmental Geography)*  
HULSMAN, Pierre *(Computer Science)*  
LARSEN, Michael Richard *(Botany)*  
LUZIPO, Mmeli *(Geology)*  
MARE, Celeste *(Zoology)*  
MASTERS, Timothy James Lovell  
*(Environmental Geography)*  
MAZWANE, Sixolile Leonora *(Botany)*  
MOORCROFT, David Fenner *(Geology)*  
MUJURU, George Tungamirai *(Computer Science)*  
MUKOMA, Thendo *(Geology)*  
NKONKI, Busisiwe  
*(Geographical Information Systems)*

NQOTO, Nonele Phelewe		BENTLEY, Douglas Liam	(Computer Science)
	(Geographical Information Systems)	CARVALHO, Shandon Luke	(Botany)
PANYA PANYA, Sipokazi Ntombizifikile	(Geology)	CARVER, Liam Guy	(Computer Science)
ROUSSOUW, Natasha Kimberlee	(Botany)	DAVOREN, Brandon Hilton	(Chemistry)
SEMANE, Onwaba	(Geology)	DEMBAREMBA, Tendai Olsen	(Chemistry)
SIGQALA, Makabongwe	(Zoology)	GALUSZYNSKI, Nicholas Conrad	(Botany)
STRYDOM, Martin	(Chemistry)	GIFFORD, Dean	(Computer Science)
VAN AS, Sjani	(Botany)	HILL, Matthew Tayler	(Computer Science)
VAN DER WESTHUIZEN, Tara Peggy	(Zoology)	HO, Brandon	(Computer Science)
VAN VLIET, Tara May	(Zoology)	JOOSTE, Daniel Victor	(Chemistry)
WEITZ, Riaan	(Botany)	KOEN, Salomon Johannes	(Computer Science)
WELGEMOED, Maryke	(Microbiology)	PRINGLE, Nadine Alex	(Biochemistry)
ZIETSMAN, Jaco Frederick	(Computer Science)	REID, Vincent Calvin	(Computer Science)
		SAINSBURY, Matthew	(Computer Science)
		VAN DEN HEEVER, Danielle Zuanda	(Zoology)
		VRANCKEN, Candysse Amy Louise	(Applied Mathematics)
<b>CUM LAUDE</b>			
BATTISON, Aidan Leigh	(Chemistry)		



## FACULTY OF SCIENCE

### MASTER OF SCIENCE (RESEARCH)

BIYANA, Nobuhle Yvonne  
(*Textile Science*)

Title of dissertation:

*STUDIES ON FLAX/POLYPROPYLENE-REINFORCED COMPOSITES FOR AUTOMOTIVE APPLICATIONS*

Supervisor: Dr NV Jacobs

Co-supervisor: Dr MJ John

---

BOLO, Lukanyo Lucious – **Cum Laude**  
(*Chemistry*)

Title of dissertation:

*AN INVESTIGATION INTO THE EFFECTS OF NANO-CARBONS ON THE NEGATIVE ELECTRODE MORPHOLOGY OF LEAD ACID BATTERY UNDER HIGH RATE PARTIAL STATE CAPACITY CYCLING*

Supervisor: Prof EE Ferg

---

CHIUSWA, Chengetanai  
(*Biochemistry*)

Title of dissertation:

*THE ROLE OF CANCER PROCOAGULANT ON THE mTOR PATHWAY*

Supervisor: Prof CL Frost

---

CLAASEN, Debbie – **Cum Laude**  
(*Geology*)

Title of dissertation:

*A GEOSCIENTIFIC FRAMEWORK FOR THE PROPOSED SITE OF SOUTH AFRICA'S SECOND NUCLEAR POWER PLANT – THYSPUNT, SOUTH AFRICA*

Supervisor: Prof MJ de Wit

---

MBULANGA, Crispin Munyelele – **Cum Laude**  
(*Physics*)

Title of dissertation:

*DEFECT-RELATED PHOTOLUMINESCENCE OF ZINC OXIDE NANORODS*

Supervisor: Prof JR Botha

Co-supervisor: Dr ZN Urgessa

---

MILLER, Warren David – **Cum Laude**  
(*Geology*)

Title of dissertation:

*GEOLOGY AND GEOCHRONOLOGY OF THE GAMTOOS COMPLEX AND LOWER TABLE MOUNTAIN GROUP, CAPE FOLD BELT, EASTERN CAPE, SOUTH AFRICA*

Supervisor: Prof MJ de Wit

---

MOLABA, Tshepiso Princess  
(*Textile Science*)

Title of dissertation:

*LONG TERM EFFECTS OF TEMPERATURE AND HUMIDITY ON LIGNOCELLULOSIC FIBRES AND COMPOSITES*

Supervisor: Dr MJ John

Co-supervisor: Mr SA Chapple

---

NIYITEGEKA, Jean Marie Vianney – **Cum Laude**  
(*Mathematics*)

Title of dissertation:

GENERALIZATIONS OF SOME FIXED POINT THEOREMS IN BANACH AND METRIC SPACES

Supervisor: Dr M Weigt

---

THUBENI, Sinethemba Morine  
(*Mathematical Statistics*)

Title of dissertation:

THE IMPORTANCE OF DEMOGRAPHIC TRENDS IN FORECASTING ENERGY DEMAND FOR PRIVATE HOUSEHOLDS IN SOUTH AFRICA

Supervisor: Prof IN Litvine

---

WEITZ, Selwyn Herbert  
(*Chemistry*)

Title of dissertation:

THE SYNTHESIS AND ANALYSIS OF (2R,3R)-1,1,4,4-TETRAPHENYLBUTANE-1,2,3,4-TETRAOL (TETROL) AND DERIVATIVES, AND A STUDY OF THEIR HOST POTENTIAL

Supervisor: Dr B Barton  
Co-supervisor: Prof CW McClelland

---

## **MASTER OF TECHNOLOGY: CHEMISTRY (COURSEWORK)**

MAVUMENGAWANA, Bongeka Nomakhepu  
(*Product and Process Development*)

Title of treatise:

THE EVALUATION OF A HANDHELD RAMAN ANALYSER FOR THE GOOD LABORATORY PRACTISE (glp) COMPLIANT IDENTIFICATION OF PARACETAMOL RAW MATERIALS, IN A PHARMACEUTICAL MANUFACTURING ENVIRONMENT

Supervisor: Prof B Zeelie  
Co-supervisor: Mr D Muller

---

## **FACULTY OF ENGINEERING, THE BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY**

### **MASTER OF ENGINEERING IN MECHATRONICS (RESEARCH)**

FERREIRA, Tremaine Pierre

Title of dissertation:

RESEARCH AND DEVELOPMENT OF AN INTELLIGENT AGV-BASED MATERIAL HANDLING SYSTEM FOR INDUSTRIAL APPLICATIONS

Supervisor: Prof IA Gortlach

---

RAFFLER, Oliver – **Cum Laude**

Title of dissertation:

A ROLLER TEST BENCH FOR THE EVALUATION OF AUTOMOTIVE VEHICLE NOISE, VIBRATION AND HARSHNESS

Supervisor: Prof Dr Ing U Becker  
Co-supervisor: Prof T van Niekerk

---

## MASTER OF SCIENCE IN THE BUILT ENVIRONMENT (COURSEWORK)

JAMES, Matthew Gray Robert  
(*Property Economics and Valuation*)

Title of dissertation:  
*DECISION MAKING FOR INVESTMENT IN RESIDENTIAL REAL ESTATE*

Supervisor: Dr B Botha

---

## MASTER OF TECHNOLOGY: ENGINEERING: CIVIL (RESEARCH)

SWANEPOEL, Charl – **Cum Laude**

Title of dissertation:  
*USING VEHICLE ACTIVATED SIGNS AS AN INTEGRATED MEASURE TO IMPROVE ROAD SAFETY IN SOUTH AFRICA*

Supervisor: Mr A Nagel  
Co-supervisor: Mr GW Pryce-Lewis

---

## MASTER OF TECHNOLOGY: INFORMATION TECHNOLOGY (RESEARCH)

HUTTON, David Campbell – **Cum Laude**

Title of dissertation:  
*DATA MODELLING TECHNIQUES TO IMPROVE STUDENTS' ADMISSION CRITERIA*

Supervisor: Prof JF van Niekerk

---

## FACULTY OF HEALTH SCIENCES

### MASTER OF ARTS IN CLINICAL PSYCHOLOGY (COURSEWORK)

BARNWELL, Garret Christopher – **Cum Laude**

Title of treatise:  
*CLINICAL PSYCHOLOGIST'S PERCEIVED BARRIERS TO THE PROVISION OF PSYCHOLOGICAL SERVICES FOR PEOPLE WITH FIRST-EPISODE SCHIZOPHRENIA IN URBAN PUBLIC HEALTH CARE SETTINGS*

Supervisor: Mr V Sack  
Co-supervisor: Prof J Strümpher

---

MCINTYRE, Tracy-Leigh

Title of treatise:  
*AN EXPLORATION OF THE EFFECTS OF MINDFULNESS ON PEOPLE WITH AN HIV POSITIVE DIAGNOSIS LIVING IN THE EASTERN CAPE, SOUTH AFRICA*

Supervisor: Prof DS Elkonin

---

VAN RENSBURG, Philip – **Cum Laude**

Title of treatise:  
*CYBERBULLYING AND ADOLESCENTS' SELF-ESTEEM*

Supervisor: Prof JG Howcroft  
Co-supervisor: Prof K Thomson

---

## MASTER OF PHARMACY (RESEARCH)

RAMKHALAWON, Shabeerah

Title of dissertation:

*ANTIBIOTIC STEWARDSHIP: THE ROLE OF THE CLINICAL PHARMACIST*

Supervisor: Prof S-A Boschmans

Co-supervisor: Ms LC Kritiotis

---

## MASTER OF SCIENCE (RESEARCH)

ISAACS, Nasreen – **Cum Laude**

*(General Health Sciences)*

Title of dissertation:

*FORMULATION AND PROCESS OPTIMIZATION OF ETHIONAMIDE 250MG TABLETS USING QUALITY BY DESIGN PRINCIPLES*

Supervisor: Prof G Kilian

Co-supervisors: Dr MZ Keele and Dr WL Scheepers

---

## **FACULTY OF HEALTH SCIENCES**

### **DOCTOR OF PHILOSOPHY**

VAN DER WESTHUIZEN, Amanda  
(*Psychology*)

Title of thesis:

*CO-MAPPING THE MAZE: A COMPLEX SYSTEMS VIEW OF HUMAN TRAFFICKING IN THE EASTERN CAPE*

Supervisor: Prof CN Hoelson

---

## **FACULTY OF ENGINEERING, THE BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY**

### **DOCTOR OF PHILOSOPHY IN ENGINEERING**

OLUFAYO, Oluwole Ayodeji  
(*Mechatronics*)

Title of thesis:

*ULTRA-HIGH PRECISION MACHINING OF CONTACT LENS POLYMERS*

Supervisor: Prof K Abou-El-Hossein

---

## **FACULTY OF SCIENCE**

### **DOCTOR OF PHILOSOPHY**

DE RIDDER, Cornelius Henry  
(*Botany*)

Title of thesis:

*THE EFFECT OF ACACIA KARROO TREE DENSITY ON GRASS SPECIES COMPOSITION, FORAGE YIELD AND QUALITY IN DIFFERENT RAINFALL REGIMES IN THE EASTERN CAPE, SOUTH AFRICA*

Supervisor: Prof EE Campbell

---

GOUGH, Katie Frances  
(*Zoology*)

Title of thesis:

*RELATEDNESS, SOCIAL BEHAVIOUR, AND POPULATION DYNAMICS OF THE ELEPHANTS (LOXODONTA AFRICANA) OF ADDO ELEPHANT NATIONAL PARK, SOUTH AFRICA*

Supervisor: Prof GIH Kerley  
Co-supervisor: Dr AM Shrader

---

KAMPIRE, Edwige  
(*Chemistry*)

Title of thesis:

*CHARACTERIZATION OF POLYCHLORINATED BIPHENYL RESIDUES IN THE NORTH END LAKE AND PORT ELIZABETH HARBOUR, SOUTH AFRICA*

Supervisor: Dr GR Rubidge  
Co-supervisor: Prof JB Adams

---

NONGAUZA, Sinethemba Aubrey  
(*Chemistry*)

Title of thesis:

*AN INVESTIGATION OF THE EFFECT OF CO-SOLVENTS ON THE HYDROTHERMAL LIQUEFACTION OF MICROALGAE BIOMASS*

Supervisor: Dr GM Dugmore  
Co-supervisor: Prof B Zeelie

---

SITHOLE, Vhusomuzi Blessing  
(*Environmental Geography*)

Title of thesis:

*A MULTI-SCALE REMOTE SENSING ASSESSMENT OF INDIGENOUS SUB-TROPICAL FORESTS ALONG THE WILD COAST, SOUTH AFRICA*

Supervisor: Prof V Kakembo

---

UITHALER, Eldrid Marlon  
(*Geography*)

Title of thesis:

*EVALUATING THE EFFECTIVENESS OF PUBLIC PARTICIPATION IN THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS*

Supervisor: Prof MJ de Wit

---

## **DOCTORAL DEGREE CITATIONS**

# **THE DEGREE OF DOCTOR OF PHILOSOPHY (PSYCHOLOGY)**

**AMANDA VAN DER WESTHUIZEN**

## **Previous qualifications:**

2005 BAHons (Psychology) cum laude

Nelson Mandela Metropolitan University

2008 MA (Counselling Psychology) cum laude

Nelson Mandela Metropolitan University

## **Thesis**

*CO-MAPPING THE MAZE: A COMPLEX SYSTEMS VIEW OF HUMAN TRAFFICKING IN THE EASTERN CAPE*

The candidate conducted a qualitative study informed by eco-systemic and complex systems theory that consisted of two phases to explore and describe the complex nature of human trafficking in the Eastern Cape Province of South Africa. Qualitative data was collected through individual semi-structured interviews with a diverse range of knowledgeable participants in various systems directly involved in countering human trafficking in the Eastern Cape. Through participant and methodological triangulation Ms van der Westhuizen was able to gain an in-depth understanding from diverse perspectives and ascertain the micro-, meso-, and macro-eco-systemic factors and their interrelationships that contributed to the complexity of human trafficking in the Eastern Cape. In addition, Ms van der Westhuizen was able to identify and describe multiple paradoxical and nonlinear dynamics that characterise the complex relationships amongst human traffickers, their victims, those involved in countering human trafficking, and several contextual factors which included the exploitation and distortion of traditional cultural practices and poor socio-economic conditions both locally and internationally.

The data indicated that the multiple eco-systemic factors exercised an influence on human trafficking in the Eastern Cape. However, a number of these factors involved bi-directional and nonlinear relationships that implied that the utilisation of traditional modernist scientific methodologies and interventions are inappropriate in such contexts. The thesis underlines the contribution and importance that eco-systemic and complexity paradigms are able to provide in complementing current static and linear understanding of and interventions in contexts of human trafficking. Significant findings to emerge from the study included the highly interrelated systemic network of multiple factors linking local and international human trafficking contexts and the complex challenges experienced by police, the legal system, and communities in understanding, predicting, and countering human trafficking in the Eastern Cape.

The thesis makes a valuable contribution to the current and rapidly-accelerating multidisciplinary field of human trafficking, particularly with regard to the significant contribution that eco-systemic and complex systems theory offers regarding the complex interactive nature of human trafficking in local and international contexts.



# **THE DEGREE OF DOCTOR OF PHILOSOPHY IN ENGINEERING (MECHATRONICS)**

**OLUWOLE AYODEJI OLUFAYO**

**Previous qualifications:**

2008 BEng (Electrical and Electronic)

Federal University of Technology, Nigeria

2011 MEng (Mechatronics)

Nelson Mandela Metropolitan University

**Thesis:**

*ULTRA-HIGH PRECISION MACHINING OF CONTACT LENS POLYMERS*

Contact lens manufacturing requires a high level of accuracy and surface integrity. Amidst numerous optical manufacturing techniques, single-point diamond turning is widely-employed in the making of advanced optical components owing to its capability of producing optical surfaces of complex shapes and with nanometric accuracy. In this process, a single crystalline diamond tool is employed to shape contact lenses having a surface roughness of a few nanometres.

The literature confirms that nanometric surface quality on contact lens surfaces is directly linked to the processing parameters of ultra-high precision diamond-turning operations. However, there is little information available on the performance of single-point diamond turning when making contact lenses. Therefore, the research undertaken by Oluwole Olufayo aimed at establishing the effect of various processing parameters in diamond-turning of contact lenses made from recently-developed advanced polymeric materials.

For the study, Olufayo conducted a series of experiments using the NMMU's state-of-the-art ultra-high precision manufacturing and metrological facilities located in the School of Engineering. Olufayo's experiments were aimed at optimising the various processing parameters of ultra-high precision diamond-turning to produce contact lenses with optical surfaces of nanometric-form errors and ultra-fine roughness at the lowest possible costs of diamond tooling. The work also established an understanding on how optical surface accuracy responded to various monitoring signals such as acoustic emission and cutting force.

The acquired data from experimentation was statistically-analysed to create a predictive model of the ultra-high precision diamond-turning process. Subsequently, a model which used a fourth order non-linear finite series scheme was adapted to deduce the cutting force occurring at the tool tip and predict its effect on the overall process performance. Further experimental tests were aimed at establishing the presence of the tribo-electric wear phenomena occurring during polymer diamond machining. Statistical analysis of the tribo-charging phenomena was performed at variable levels of relative humidity. Furthermore, the study also provided a molecular dynamics simulation analysis at the nanometric scale of polymers machining to validate the observed conditions occurring during diamond-turning machining.

The outcome of this research has contributed significantly to knowledge and has provided considerable information in the area of ultra-high precision manufacturing of optical components of high-surface integrity such as contact lenses. The application of the research findings presented in Olufayo's thesis also cuts across various fields such as medicine, mechatronics and materials engineering.

# THE DEGREE OF DOCTOR OF PHILOSOPHY

## CORNELIUS HENRY DE RIDDER

### Previous qualifications:

2002 BScHons (Botany)  
2005 MSc (Botany)

University of Free State  
Nelson Mandela Metropolitan University

### Thesis:

*THE EFFECT OF ACACIA KARROO TREE DENSITY ON GRASS SPECIES COMPOSITION, FORAGE YIELD AND QUALITY IN DEFFERENT RAINFALL REGIMES IN THE EASTERN CAPE, SOUTH AFRICA*

Bush encroachment is widely-believed to affect grass production in pastures negatively. Eastern Cape farmers often clear thorn trees at great expense to encourage grass production. In response to this, the candidate investigated the effect of a range of *Acacia karroo* tree densities on grass production in areas of different annual rainfall. His findings emphasized the complexity of such plant interactions but showed that rainfall modified the effect of these trees on both grass production and quality. Grass yield was reduced at high tree density under low rainfall, but not in higher rainfall conditions. By contrast, the crude protein content of grasses showed the opposite trend with lower quality in high rainfall areas. However, under low tree density, grass quality was lower than where these leguminous trees occurred at sufficient density to enrich the soil. Comparing these responses with the cost of clearing provides a model that could be used to advise farmers as to when they should clear trees. Such advice could save farmers unnecessary expense for clearing trees if insufficient benefit is predicted to follow.

# THE DEGREE OF DOCTOR OF PHILOSOPHY (ZOOLOGY)

**KATIE FRANCES GOUGH**

**Previous qualifications:**

2007 BSc (Zoology)

University College Cork (Ireland)

**Thesis:**

*RELATEDNESS, SOCIAL BEHAVIOUR, AND POPULATION DYNAMICS OF THE ELEPHANTS (LOXODONTA AFRICANA) OF ADDO ELEPHANT NATIONAL PARK, SOUTH AFRICA*

Elephants are increasingly managed as small, fenced populations. Current poaching indicates this trend will accelerate. However, little is known about the dynamics and social structure of such populations, nor how to manage them. Katie Gough investigated a small, closed elephant population in the Addo Elephant National Park, South Africa. She analysed an individual life-history database for this population that extends back to 1931, which is the only database longer than an elephant lifespan globally. Katie Gough examined population growth for evidence of density-dependent effects as the population increased. In addition, she quantified association patterns of known individuals in the context of female elephant family groups and male elephants. The social structure of the family groups was examined using Hamilton's kinship theories of inclusive fitness and age. Male-female patterns of association were examined for inbreeding avoidance behaviours.

Density-dependence was assessed using the long-term individual life history database. At Addo, densities have exceeded carrying capacities since the population was fenced in 1954. Unexpectedly, population growth rate correlated positively with increasing density, and might reflect more females being recruited into the breeding population. No relationships between birth rate, age of first calving or calf sex ratio and elephant density were detected. The study found that the birth rate was related to rainfall during the year of conception, mortality rates were low and mean inter-calf interval was 3.3 years. The lack of density dependent regulation might reflect the lack of forage limitations in the dense, evergreen subtropical thickets of this park. Thus, density dependence should not be considered as an option to control elephant numbers in Addo, or where elephant resources were not seasonally limited. These findings highlighted the risk of the Addo elephants overgrazing their forage resource.

Association patterns of the adult females were not random at the population, family or individual scale. As predicted, preferred associates of females were close relatives. This finding is aligned to kinship theory. Such kinship association patterns were particularly important in species where closely-related individuals contribute to each other's survival and reproductive output. The adult males in this population were found to have a well-differentiated society with non-random associations. Generally, males were found to have weak associations with most other males and strong associations with only a few males, who might not be closely-related. This association pattern was found to be persistent over the time frame of the study, as indicated by the time-lag analysis. Males returned to their natal family, even when related females were in oestrus. Oestrus females directed positive behaviours towards musth males. It appeared that behavioural inbreeding avoidance mechanisms in this small, closed-population were inhibited, as musth status seemed to override inbreeding avoidance. There were thus no inbreeding avoidance mechanisms operating.

This study highlighted the risks of managing elephants in small, closed populations and the importance of social interactions in such populations. Importantly, management strategies cannot rely on density dependence to regulate population growth, nor inbreeding avoidance behaviours to maintain normal genetic patterns.

# THE DEGREE OF DOCTOR OF PHILOSOPHY (CHEMISTRY)

**EDWIGE KAMPIRE**

**Previous qualifications:**

2005 BSc (Chemistry)

2010 MSc (Environmental Sciences)

National University of Rwanda

Makerere University

**Thesis:**

*CHARACTERIZATION OF POLYCHLORINATED BIPHENYL RESIDUES IN THE NORTH END LAKE AND PORT ELIZABETH HARBOUR, SOUTH AFRICA*

Polychlorobinphenyls (PCBs) are a series of toxic and highly-persistent organic molecules that were extensively used in electrical applications such as transformer oils and in plasticisers. Although PCB production has been banned, these substances continue to pose an environmental threat and they have been the focus of environmental research owing to their affinity for fatty tissues in organisms. They have entered the food chain where they accumulate and become biomagnified and ultimately impact on top predators as well as human health. However, very little research on PCB contamination has been conducted in South Africa. The North End Lake, formerly a pristine body of water well-known for its water sports, has become polluted and supports extensive informal fishing. The aim of this research was to investigate potential PCB contamination of the North End Lake and the PE Harbour so as to determine if there are risks associated with water use and consumption of fish and shellfish taken from these areas and to determine the general PCB contamination status of these water bodies.

Edwige Kampire embarked on extensive sampling and PCB analysis program involving the surface sediments and waters of the North End Lake and the PE harbour as well as selected biota from both water bodies. Samples were processed and extracted by Soxhlet extraction and analysed by gas chromatography with mass spectrometric detection, which separated the PCBs and quantified them using recognised and validated analytical methods. The research focused on six indicator PCBs that represent the full series of 209 molecules.

Analysis of PCBs in fish of the North End Lake focused on the most abundant angling catches, namely, *Cyprinus Carpio* (carp) and *Oreochromis Mossambicus* (tilapia). Organ-specific analyses were conducted to determine the PCB distribution between the liver, gills, gonads and flesh of these fish. Tilapia proved to be more contaminated than the carp and the variance analysis showed that the lipid-rich livers were most contaminated with PCBs, and the flesh of both species were also significantly-contaminated. The research showed that the PCBs were transferred from sediments and water to these regularly-eaten fish. Based on Kampire's findings, no more than two meals of fish of 225g should be eaten per month to avoid adverse health effects.

*Mytillus galloprovincialis* (blue mussels) and *perne perna* (brown mussels) were sampled in the PE Harbour and at the sea outfall of the North End Lake. Significant levels of PCBs in mussels at both locations showed evidence of localized and remote pollutant transfer.

The study provides the first unique snapshot of PCB contamination in the PE Harbour and the North End Lake, confirming that both water bodies and biota are impacted by this class of pollutant. The research provided scientific information that is critical in the planned rehabilitation of the lake and important in preservation of human and animal health.

# **THE DEGREE OF DOCTOR OF PHILOSOPHY (CHEMISTRY)**

**SINETHEMBA AUBREY NONGAUZA**

**Previous qualifications:**

2008 BScHons (Biochemistry)

University of Fort Hare

2010 MSc (Engineering Sciences, Chemical Engineering)

North West University

**Thesis:**

*“AN INVESTIGATION OF THE EFFECT OF CO-SOLVENTS ON THE HYDROTHERMAL LIQUEFACTION OF MICROALGAE BIOMASS”*

There is increasing global recognition for sustainable economic development that is driving a growing biomass economy. This will result in a major shift in the chemical manufacturing industry in the coming decades. In processing biomass to chemicals and fuel chemicals, different raw materials are used, while catalysts, reactors, operating conditions and products may also be different. This work is centred on the hydrothermal processing of algae biomass in a flow reactor to better understand and thus overcome some of the limitations encountered. Sinethemba Nongauza investigated the effect that co-feeding solvents, together with aqueous microalgae, had on the issue of tubular reactor plugging and on the nature of products formed.

The thesis presents an investigation into the continuous hydrothermal liquefaction of microalgae. More specifically, it studies the effect of co-fed solvents to modify the process with a view to avoiding system blockage, as is the experience in the absence of such co-fed solvents. Research into biomass flow chemistry has started, however, examples are few and mostly concentrated around the conversion of single bio-derived molecules such as glucose, furfural and fructose. In this work, complex microalgae were used as the feedstock to produce fuel chemical molecules in a single step. This was shown to have the drawback of reactor plugging. Sinethemba Nongauza approached this drawback by studying the effect of co-fed solvents as a means of mitigating this problem. The results presented show that co-fed solvents resulted in an increased yield of bio-fuel products, improved quality of product in terms of boiling range distribution and elemental composition. Furthermore, data was presented that showed a considerable reduction in the rate of plugging of reactor tubes when co-feeding solvents. Detailed analysis of the product composition was presented and provided further new insight to the role of the co-solvent in the process. The study makes an original contribution to further the understanding of continuous processing of biomass, which is an important contribution to the goal of shifting to sustainable alternatives.

# THE DEGREE OF DOCTOR OF PHILOSOPHY

## VHUSOMUZI BLESSING SITHOLE

### Previous qualifications:

2003	BScHons (Geography)	University of Zimbabwe
2006	MSc (Environmental Policy and Planning)	University of Zimbabwe
2009	MSc (Geo-Information Science and Earth Observation)	International Institute for Geo-Information Science and Earth Observation (ITC), Netherlands

### Thesis:

*A MULTI-SCALE REMOTE SENSING ASSESSMENT OF INDIGENOUS SUBTROPICAL FORESTS ALONG THE WILD COAST, SOUTH AFRICA*

Subtropical forests located along South Africa's Wild Coast region are one of the biodiversity hotspots. However, they are under constant threat of degradation, particularly by growing population and reduced income from activities not related to forest products. In his study, Vhusomuzi Sithole assessed the ability of remote-sensing technology to quantify subtropical forest cover change trends in the periods 2005-2009 and 2009-2013. He also performed forest species discrimination and integrated field spectral and multispectral data.

Using satellite imagery and field spectroscopy, Vhusomuzi Sithole noted a decreasing trend in the areal extent of subtropical forests and identified optimal wavelengths for species discrimination. His study also integrated field-collected canopy spectral and multispectral data to discriminate proportions of semi-deciduous and evergreen subtropical forests. Proportional maps developed showed higher proportions of evergreen forests along the coast while semi-deciduous subtropical forest species were predominantly located in the inland parts of the Wild Coast.

This study served to upscale field hyperspectral to multispectral data for subtropical forest characterisation. Upscaling studies and other forms of extrapolation may, therefore, concentrate on the identified wavelengths and their general location on the electromagnetic spectrum. Such technological advances should be embraced in national decision-making processes, particularly in the future of subtropical forests conservation.

# THE DEGREE OF DOCTOR OF PHILOSOPHY (GEOGRAPHY)

## ELDRID MARLON UITHALER

### Previous qualifications:

1992	BScHons (Geography)	University of the Western Cape
2000	MEd (Environmental and Sustainability Studies)	Rhodes University
2008	MA (Development Studies)	Nelson Mandela Metropolitan University

### Thesis:

*EVALUATING THE EFFECTIVENESS OF PUBLIC PARTICIPATION IN THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS*

In an age of growing concerns about the urgent need to preserve and improve natural and living habitats, a worrisome trend in South Africa, is a general lack of effective public participation in decision-making about its environments. The effectiveness of public participation and how the South African government might support a more efficient integrated approach to environmental decision-making, giving citizens not only a voice, but also a responsibility and platform to ensure that decision-making that affects their lives and livelihoods involves them, is the focus of this in-depth research by Eldrid Uithaler, a practicing community-based academic - or 'pracademic'.

Eldrid Uithaler has shown through theoretical reasoning based on extensive data collecting and analysis that whilst in South Africa, an enabling environment to address impacts on our environment was slowly emerging. However, no single conventional disciplinary area of research was able to integrate the issues of public participation, Environmental Impact Assessments (EIA) and decision-making in the context of its current transformation and development needs.

Uithaler's work draws, in particular, on lessons learnt and good-practice models from internationally and nationally relevant cases, which in South Africa include three prominent case studies: the Coega Industrial Development Zone; the Pondoland N2 Toll-Road; and the anticipated Karoo Shale Gas development linked to hydraulic fracturing. In each of these projects, Uithaler has analysed concerns of an environmental, socio-economic and political nature to assess if the public participation process has had influence, if any, on the final decisions for these projects to go-ahead.

Based *inter alia* on the views and perceptions of practitioners and through face-to-face interviews with the general public, Uithaler showed that the results were not overly encouraging. His work revealed that, in practice, EIAs remained unsatisfactory institutional processes of power division between different actors. In addition, he suggested that pracademics must play a more fundamental role to ensure effectiveness and fairness in the public participation process. The importance of this work showed that (pra-) academic commentators should call for and facilitate new trans-disciplinary approaches that emphasised collaborative interaction between decision-makers and the public, as well as deliberation amongst participants.



## **VISION**

**To be a dynamic African university, recognised for its leadership in generating cutting-edge knowledge for a sustainable future.**

## **MISSION**

**To offer a diverse range of quality educational opportunities that will make a critical and constructive contribution to regional, national and global sustainability.**

To achieve our vision and mission, we will ensure that:

- Our values inform and define our institutional ethos and distinctive educational purpose and philosophy.
- We are committed to promoting equity of access and opportunities so as to give students the best chance of success in their pursuit of lifelong learning and diverse educational goals.
- We provide a vibrant, stimulating and richly diverse environment that enables staff and students to reach their full potential.
- We develop graduates and diplomates to be responsible global citizens capable of critical reasoning, innovation, and adaptability.
- We create and sustain an environment that encourages and supports a vibrant research, scholarship and innovation culture.
- We engage in mutually beneficial partnerships locally, nationally and globally to enhance social, economic, and ecological sustainability.

## **VALUES**

### **i. Respect for diversity**

- We reflect and serve diverse regional, national and global communities
- We promote an open society where critical scholarship and the expression of a multiplicity of opinions and experiences are actively encouraged
- We foster an environment in which diversity is appreciated, respected and celebrated
- We are committed to accessibility, inclusivity and social justice

### **ii. Excellence**

- We promote, recognise and reward excellence in our teaching, learning, research and engagement
- We promote, recognise and reward excellent service delivery to all our stakeholders
- We provide a supportive and affirming environment that enables students and staff to reach their full potential
- We adopt innovative approaches to promote excellence in our institutional policies, structures, processes and systems

### **iii. Ubuntu**

- We are a people-centred university
- We respect the dignity of others
- We recognise our mutual interdependence
- We promote compassionate and responsible citizenship

### **iv. Integrity**

- We act with integrity and accept responsibility for our actions
- We behave in an ethical and professional manner
- We conduct our activities in an accountable and transparent manner
- We ensure the integrity of our information, systems and processes



**v. Respect for the natural environment**

- We care about the environment and recognise our responsibility to conserve, protect and properly manage natural resources for ourselves and future generations
- We promote the integration of sustainability principles into our academic practices, institutional operations and design of physical infrastructure
- We encourage mutually beneficial and sustainable approaches to community service and engagement
- We inspire students and staff to embrace environmentally friendly practices

**vi. Taking responsibility**

- We acknowledge our personal responsibility for ethical behaviour towards others
- We assume responsibility for the achievement of personal and institutional goals
- We accept responsibility for our actions and the consequences thereof
- We provide an environment that encourages students and staff to take responsibility for their academic and professional endeavours

**EDUCATIONAL PURPOSE AND PHILOSOPHY**

- We provide transformational leadership in the service of society through our teaching and learning, research and engagement activities.
  - To achieve this we are committed to developing the human potential of our staff and students in the full spectrum of its cognitive, economic, social, cultural, aesthetic and personal dimensions in the pursuit of democratic citizenship.
- We adopt a humanising pedagogical approach that respects and acknowledges diverse knowledge traditions and engages them in critical dialogue in order to nurture a participative approach to problem-posing and -solving, and the ability to contribute to a multi-cultural society.
- We inspire our stakeholders to be passionate about and respectful of an ecologically diverse and sustainable natural environment.
- We will be known for our people-centred, caring, values-driven organisational culture that will allow all members of the university community to contribute optimally to its life.

## **CONGRATULATORY MESSAGE FROM THE ALUMNI ASSOCIATION**

Congratulations on your achievement! You are now an alumnus of NMMU. We would like to take this opportunity to introduce you to the NMMU Alumni Association.

Once you have obtained your NMMU certificate, diploma or degree you become an alumnus of the university and a member of the NMMU Alumni Association. The Association is recognised by the NMMU Council as a structure of the University. The Association supports and enhances the realisation of the University's vision and mission through maintaining and expanding positive relationships with its members.

The University can be supported in a variety of ways including sharing news, expertise, skills, networks and contributions in cash and kind. Cash donations to the Alumni Fund are used to fund bursaries, projects and the NMMU Capital and Endowment Campaign. Every contribution makes a difference. Donations can be made online as well.

Join our existing alumni chapters nationally and internationally or help establish new ones to maintain and build our networks. We encourage you to remain active NMMU ambassadors.

### **The role of the Alumni Relations Office**

The Alumni Relations Office is responsible for the day-to-day management and running of the Alumni Association, the University Shop and all matters related to alumni relationship building.

We kindly request all alumni to ensure that we have your latest contact details to invite you to chapter socials and networking events as well as provide you with information regarding alumni and NMMU achievements. You are also requested to send us news regarding your or fellow alumni achievements and interesting experiences for publication in our newsletters and on the website.

Please visit our website for more information <http://alumni.nmmu.ac.za> or e-mail us at [alumni@nmmu.ac.za](mailto:alumni@nmmu.ac.za) or join our Facebook page **NMMU Alumni**. Other contact details include tel. +27 41 504 3935 and fax +27 41 504 1417. You are also most welcome to visit the Alumni Relations Centre on the North Campus in Port Elizabeth.

Remember to buy your memorabilia from the University Shop during graduation.

**We look forward to hearing from you. Stay connected to your *alma mater!***

## **NATIONAL ANTHEM**

**Nkosi Sikelel'i-Afrika,  
Maluphakanyisw'uphondo lwayo,  
Yizwa imithandazo yethu,  
Nkosi Sikelela, thina lusapho lwayo.**

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

**South Africa.**

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

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

