

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 NMMU alumni, 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 415 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.

This year (2016), the university has 26602 students and close to 3990 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 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
- 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; Earth Stewardship Science Research Institute (ESSRI); and 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.

AUTUMN GRADUATION CEREMONIES: APRIL 2016

Thursday, 7 April 2016		
Ceremony 1	15:00	George Campus Faculties of Business and Economic Sciences and Education
Friday, 8 April 2016		
Ceremony 2	10:00	George Campus Faculty of Science
Tuesday, 12 April 2016		
Ceremony 3	09:30	Faculty of Business and Economic Sciences (School of Management Sciences - excluding Undergraduate Diploma qualifications) Faculty of Law
Ceremony 4	14:30	Faculty of Business and Economic Sciences (School of Economics, Development and Tourism and Graduate School)
Wednesday, 13 April 2016		
Ceremony 5	09:30	Faculty of Engineering, the Built Environment and Information Technology (School of the Built Environment and School of Information and Communication Technology)
Ceremony 6	14:30	Chancellor's Medal and Honorary Doctoral degree Faculty of Education (Undergraduate and postgraduate qualifications) Faculty of Health Sciences (Postgraduate qualifications including Bachelor of Technology degrees)
Thursday, 14 April 2016		
Ceremony 7	09:30	Faculty of Business and Economic Sciences (School of Industrial Psychology and Human Resources)
Ceremony 8	14:30	Faculty of Science
Friday, 15 April 2016		
Ceremony 9	09:30	Faculty of Engineering, the Built Environment and Information Technology (School of Engineering)
Ceremony 10	14:30	Faculty of Arts (Postgraduate qualifications including Bachelor of Technology degrees)
Saturday, 16 April 2016		
Ceremony 11	09:30	Faculty of Health Sciences (Undergraduate qualifications)
Ceremony 12	14:30	Faculty of Business and Economic Sciences (School of Accounting)
Monday, 18 April 2016		
Ceremony 13	09:30	Faculty of Arts (Undergraduate degree qualifications)
Ceremony 14	14:30	Faculty of Arts (Undergraduate diploma qualifications)
Tuesday, 19 April 2016		
Ceremony 15	09:30	Faculty of Business and Economic Sciences (School of Management Sciences – Undergraduate Diploma qualifications)

OFFICE-BEARERS OF THE UNIVERSITY

CHANCELLOR

MS S BOTHA: BEcon, BEconHons(US)

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, 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 University, USA)

EXECUTIVE DIRECTOR: FINANCE

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

EXECUTIVE DIRECTOR: HUMAN RESOURCES

MR S HLOHLOLO (ACTING): BAHons(UDW)

REGISTRAR

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

PRESIDENT OF ALUMNI ASSOCIATION

DR R JONAS: BA(UWC), HDE, BAHons(Unisa), MA(UPE), PhD(NMMU)

EXECUTIVE DEANS OF FACULTIES:

ARTS

PROF MJR BOSWELL: BSocSc, BSocScHons, MSocSc(UCT), PhD(Vrije Universiteit, Netherlands)

BUSINESS AND ECONOMIC SCIENCES

DR I LAGARDIEN: PGDip(UCT), MSc(London School of Economics), PhD(University of Wales), Graduate Diploma(UCT)

EDUCATION

DR SF MOENG: BA, HDE, BEdHons(UPE), MSc(St Cloud State University, USA), 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), Pr Eng

HEALTH SCIENCES

PROF HV EXNER: BChD(UP), MSc Dent Sc(US), PhD(Medunsa), DHA(Dent)(UP), EDP(US)

LAW

PROF A GOVINDJEE (ACTING): BA, LLB(RU), LLM(UPE), LLD(NMMU)

SCIENCE

PROF A MURONGA: BSc, UED(UNIVEN), BScHons, MSc(UCT), PhD (University of Minnesota, USA)

DEAN OF TEACHING AND LEARNING

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

DEAN OF STUDENTS

MR M NCAPAYI (ACTING): BA, BAHons(UFH), BAHons(UPE), MA(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 take seats)

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)

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 keep cheering and ululating to a minimum, respecting fellow congregants.*



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

NATIONAL DIPLOMA: AGRICULTURAL MANAGEMENT

ADONIS, Zozibini
BUSHULA, Indiphile
CHAUKE, Ndzalama
DANGAZELA, Luyolo
DESCHAMPS, Jason
DEYI, Mcumane
DINGA, Vuyokazi Thelma
FERREIRA, Maurice Daniell
FRANCIS, Shree Ann
GOOSEN, Theunis Willem
HOLMES, Whitney
JUMBA, Lufefe
JWAMBI, Sinesipho Precious
KAMA, Zenzeka
KHANYA, Vuyolwethu
LAMONT, Colin
MABOHLO, Sakikhaya
MADIKIZELA, Anathi
MALIWA, Ncedeka
MANGESI, Silindokuhle
MAQOLO, Lindelwa
MARWANQA, Vuyokazi
MASITHA, Nosipho Bennita
MATSILA, Sesethu
MFAISE, Asive
MFAXA, Lwando
MHLAHLA, Andisiwe
MLOMZALE, Siqhamo
MLUNGWANA, Asive

MOSOMANE, Smangaliso Samson
MSINDO, Yandisa Eugen
MSITSHANA, Andiswa Pamela
MTUKUSHE, Phumza
MTWEBANA, Amandla Anathi
MXOLI, Vuyokazi
NDLANGISA, Sandisiwe
NGCONGO, Vuyokazi
NKOMO, Sinazo
NKOMONTLE, Avuziwe Unathi
NOGWEBELA, Anelisa
NZUZA, Nokwanda Nokukhanya
PANDELA, Yanga Wendy
RADEBE, Manene Akhona
SATULA, Simamkele Zipho-Zakhe
SEBAKE, Tebogo Matsimela
SIGUDLA, Gugulethu Adorable
SIYENGO, Ntomboxolo
TANYANA, Ntombikayise
THAMELA, Yolanda Benedict
THANDA, Mthandazo
TSOTSI, Zikhona Siyasanga
TYWAKU, Alungile
VUMISA, Yolanda Khanyisile
ZIQU, Bakhulule Ezile

Cum Laude

NONTONGANA, Sibonokuhle
ZIEMANN, Jordon Emslie

NATIONAL DIPLOMA: ANALYTICAL CHEMISTRY

BAARTMAN, Phinnesica Janice
BATA, Sibabalwe
BEN-MAZWI, Yonela
BONGA, Mzobanzi Micheal
BOOI, Lelethu
CEDRASS, Roche Jason
DLEMBULA, Yonga Tshembe
DOWSE, Siviwe
FAKU, Okuhle
GANYA, Sinazo
GELANT, Charmaine
GEORGE, Allison Courtney
GONIWE, Phumza
HLATSHWAYO, Bonginkosi Fortune
JACOBS, Renico Eduardo
JOKANI, Nosibusiso
KHOSA, Risuna Trudie
KILANI, Mtyhileli
KILI, Sinovuyo Abegail
MAKI, Ndileka Claudia
MAMKELI, Sithenkosi

MDUBEKI, Ntokozo
MEYER, Realdon Sharmon
MNQONONGWANA, Nolitemba
NDAMASE, Masande
NDAMASE, Phathisiwe Gifted
NDIMA, Lubabalo
NDLONDLO, Noluvuyo
NGCAI, Babalwa Nomawethu
NGUDLE, Avuyile Sinethemba
NGXABI, Themba
NICHOLLS, Nicole Tamarah Clarissa
NYATI, Busisiwe Naleli
PATU, Mziwothando
QWANE, Thandokazi
RADEMEYER, Dylene
SANGQU, Vuyokazi Cynthia
SETLHAPELO, Mosalashuping Emmanuel
SIYATHA, Sinazo
SIYOKO, Xoliswa Nelisa
TOKWE, Sikelelwa

NATIONAL DIPLOMA: GAME RANCH MANAGEMENT

BOSCH, Michelle
CURTAIN, Christian Edwin
DE BARITAUULT, Xavier Marie Gregory
DOBROWSKY, Jade Anne
DU PLESSIS, Madelaine Patricia
JACOBSZ, Marko Tiaan
JAMES, Jason
PERSSE, Michael
VAN NIEKERK, Rousseau Marcel

VAN WYK, Johann
VERMEULEN, Elné
VERSTER, Wayne Ryno
WASSERMAN, Cornay

Cum Laude

BRILL, Laura
GOOSEN, Richard James

NATIONAL DIPLOMA: POLYMER TECHNOLOGY

BOOYENS, Brian
DORFLING, Hano
ISHERWOOD, Gregory
KAFA, Tapiwa
KWANINI, Olwethu Hope
NGALO, Vuyolwethu Marvin

NGOBO, Khanya Luthando
NOTSHE, Sakhe
ORTELL, Moegammad Rafeeq
SIYONA, Thantaswa
SOCOSA, Nolubabalo
TSOTSI, Puleng

DIPLOMA IN CHEMICAL PROCESS TECHNOLOGY

BOTUA, Lukanu Daniel Oxance
DIKO, Silindokuhle
FANAYO, Andile
GONTSI, Sinazo
HOBOSHE, Thulani
LUSUNZI, Mulalo Hilda
MATTHEWS, Saabier
MNTUYEDWA, Sinobomi

MUSISINYANI, Akani Merna
NDUBAZA, Nosipho
NUNGE, Noluvo
NZELANI, Lindokuhle
WALSON, Bestman Menidin

Cum Laude

OTOKOLO, Seiyefa Boardman

BACHELOR OF SCIENCE

ABEBE, Addisu Yetagesu
BANDA, Peter
BARFKNECHT, Nicholas Christopher
BARKHUYSEN, Andrea-Mari
BASSON, Kelly Sherilee
BIKO, Nomampondomise Blanche
BLEWETT, Alec Bran
BOTES, Rhys Cameron
CALDER, John Stuart
CAMILLE, Lyroy Savio Anthony
CAMPBELL, Richard Duncombe
CARD, Glen Eric
CROUS, Stephan
DASI, Nomsa Sarah
DAWSON, Kyle-Richard
DE JAGER, Danielle
DE JAGER, Lize
DE KLERK, James Carmichael
DINGAAN, Bantu Abongile
DOMONEY, Nicola Leah
DUBE, Cleopatra Thulani
DUSTAN, Chad Garreth
EDWARDS, Mark Joseph Kalahari
EVLAMBIOU, Anthony Andreas
FELKERS, Clint Elroy
FINCA, Siyabulela Sanele
FORT, Chelsea Nathania
FULLARD, Minnaar-Colin
FUMO, Mmathapelo Mahlako
GALLANT, Enrique Romario Marlin
GINSBURG, Tayla
GOVUZELA, Mnoneleli Meshark
GUMINDEGA, Geogina Charity
GUMMOW, William Thomas Jr
HAYES, Jordan Rudi
HICKSON, Matthew Victor
HILMER, Erin
HINTSHO, Asiphe
HODSON, Kayla Cassandra
HUMPHRIES, Mikhail Nathaniel
JOHNSON, Jaime Leigh
KALIPA, Ath'Enkosi
KARANJA, Daniel Sabwa
KHOSA, Kevin
LANDMAN, Neill
LE GRANGE, Philip

LUSCOMBE, Given David
LUVUNO, Qaqamba
MACKINNON, Ashley Robyn
MACQUEEN, Timothy Paul
MADYIBI, Zona Ongama
MAJARANA, Vuyolwethu
MALIBIJI, Ziyanda
MANGWIRO, Emma Rufaro
MATABANE, Rebotile
MAZULA, Nokonwaba
MBAMBO, Sibonokuhle Thandwayo
MBURI, Irene Achola
MCQUIRK, Michael Craig
MDUSHANE, Sindiswa
MHLAKAZA, Sanele
MLAMLA, Sive
MMATLI, Maboni Malose
MOODLEY, Thashini
MOORE, Dannielle Keagen
MOREIRA ARANCIBIA, Viviana Paulina
MORIARTY, Lauren Alethea
MPENGE, Lorna
MQALO, Gcobisa
MTINI, Moyisi
MULDER, Ivan Heinrich
MUNSAMY, Serisha
NAUDE, Meggan Kate
NDUMBANA, Asiphe
NELL, Leruchka
NETSHITANINI, Afarisaho Tshifhiwa
NIEUWERTH, Jean-Jacques Kyle
NOLTE, Christopher Robin
ODAYAR, Luneshri
OLIPHANT, Jocelyn Kesia
POOL, Marike Elisna
POTGIETER, Jacques Louis
PUREN, Deon
RAMASAMY, Vania Djemila
REDDY, Shanika
ROBERTS, Selwyn
SEPHTON, Abigail
SISILANA, Yanga
SMITH, Megan
SNYMAN, Dillon Jandr e
STRYDOM, Elzani
THOMAS, Dayna Lindsey

TRICAM, Shayla
 TSAURAI, Rachael Rester
 TSHIBALANGANDA, Muofhe
 VAN DER WESTHUIZEN, Shené Leonié
 VAN DEVENTER, Sinead
 VAN JAARVELD, Ruan
 VAN LOSENOORD, Wynand
 VAN SCHELTEMA, Joseph Gerhard
 VAN STADEN, Stefan
 VENTER, Christian Christoffel Rudolph
 VENTER, Lukas Johannes
 WAGNER, David Ariel Janos
 WILKENS, Layne Geoge
 WOODCOCK, Guillaume Geris

WRIGHT, Gareth Gavin
 XOTYENI, Avuyile
 ZIDE, Nwabisa Lindy

Cum Laude

BAILEY, Lauren Ashleigh
 BARNARDO, Toshka
 DU PLESSIS, Francois Hendrik
 GROBLER, Tyla
 LISTER, Cassandra Cheryl
 SCHEUN, Waldo Edward
 SMITH, Brendon
 YOUNG, Carly

BACHELOR OF SCIENCE IN INFORMATION SYSTEMS

BAILEY, Josh Luke
 BOSMAN, Hein
 LOUBSER, Stephanus Sebastiaan
 PADAYACHY, Thashen Murugasen

PHENYANE, Siphamandla Sifiso
 THERON, Lucien
 ZOLEKA, Phindile

BACHELOR OF TECHNOLOGY: AGRICULTURAL MANAGEMENT

DLAMINI, Thobekile Carol
 HLONGWANE, Siphosethu Terrence
 JILA, Ernastinah Phiwangubani
 MAGENUKA, Unathi
 MAHINTSHO, Mvuzo
 MAKHOBHA, Phumlile Sabekile
 MAPUMULO, Bongwiwe Elsie
 MAQEKEZA, Noluvo
 MBAMBANI, Ntombovuyo
 MBATHA, Qalisile Nosipho

MKHIZE, Phwayinkosi David
 MKHWANAZI, Mphumelelo Anderson
 NGCAMU, Thandiwe Marcia
 NIKELO, Azile Vuyiseka
 SANGWENI, Sphiwe Happiness
 SIFILE, Nosive
 SIKO, Zintle
 STRUMPHER, Ronel Bonita
 TSHECWA, Siyabonga
 TSHWATI, Akona

BACHELOR OF TECHNOLOGY: CHEMISTRY

DIKISO, Mboniseni
 KOYO, Pumeza Dorothea
 MASELE, Siyamtanda

MAZWI, Vuyolwethu Amanda
 SWARTBOOI, Tarryn Beatrix

BACHELOR OF TECHNOLOGY: GAME RANCH MANAGEMENT

VAN ZYL, Jané

BACHELOR OF COMMERCE HONOURS

MABOTHA, Phakisho (*Mathematical Statistics*)

Cum Laude

BOTHA, Sherise (*Mathematical Statistics*)
 MUTTUR, Shezad Adam (*Mathematical Statistics*)
 STINDT, Carmen (*Mathematical Statistics*)

BACHELOR OF SCIENCE HONOURS

ABRAHAMS, Alrecia Camoylar (*Biochemistry*)
 BARFKNECHT, Nicholas Christopher (*Computer Science*)
 CALDER, John Stuart (*Mathematical Statistics*)
 DIX-PEEK, Ross Michael (*Physics*)
 DU PLESSIS, Jacolien (*Chemistry*)
 HENNING, Kyle Glenn (*Computer Science*)
 JOHNSON, Chelsea (*Zoology*)
 MANGWIRO, Emma Rufaro (*Botany*)
 MATABANE, Rebotile (*Botany*)
 NDZISHE, Monde Siyabulela Maqwathandile (*Geology*)

OLADIPO, Joshua Femi (*Computer Science*)
 POSWAYO, Sihle Cebisa (*Mathematical Statistics*)
 ROUS, Kevin Graham (*Botany*)
 SOXUJWA, Siyabulela Sidwell (*Mathematical Statistics*)
 VAN AARDT, Kaylah-Robin (*Microbiology*)
 VAN NIEKERK, Bracken (*Mathematical Statistics*)
 VENTER, Danielle Ahlers (*Physics*)

Cum Laude

DUBE, Vusumuzi Irvin (*Formulation Science*)
 EASTWOOD, Kirstie (*Mathematical Statistics*)

MANGWIRO, Ruvimbo (Formulation Science)
MATHE, Francis Matota (Formulation Science)
MBAVA, Zukisa Phikolomzi (Mathematical Statistics)
MHLANA, Kanyisile (Formulation Science)

PLUMSTEAD, Emma Grace (Mathematical Statistics)
SASS, Shannon Leigh (Mathematical Statistics)
SEPHTON, Bereneice Charmaine (Physics)
TARBOTON, Kylie Anne (Mathematical Statistics)

MASTER OF COMMERCE (RESEARCH)

FERREIRA, Darren Bradley
(Computer Science and Information Systems)
Title of dissertation:
A WEB-BASED REPOSITORY FOR STUDENT MOBILITY DATA IN AFRICA

Supervisor: Prof AP Calitz
Co-supervisor: Dr BM Scholtz

HAUPT, Ross Andrew – **Cum Laude**
(Computer Science and Information Systems)
Title of dissertation:
A BUSINESS INTELLIGENCE FRAMEWORK FOR SUPPORTING STRATEGIC SUSTAINABILITY INFORMATION MANAGEMENT IN HIGHER EDUCATION

Supervisor: Prof AP Calitz
Co-supervisor: Dr BM Scholtz

LEE SON, Timothy – **Cum Laude**
(Computer Science and Information Systems)
Title of dissertation:
DESIGNING A PROXEMIC NATURAL USER INTERFACE TO SUPPORT INFORMATION SHARING AMONG CO-LOCATED MOBILE DEVICES

Supervisor: Prof JL Wesson
Co-supervisor: Dr D Vogts

MIENIE, Barend Jacobus
(Statistics)
Title of dissertation:
ASSESSING THE PRODUCTIVITY OF SELECTIVE CONTAINER TERMINALS IN AFRICA USING DATA ENVELOPMENT ANALYSIS (DEA)

Supervisor: Prof GD Sharp
Co-supervisor: Mr WJ Brettenny

NYUMBKA, Dumisani Joshua
(Computer Science and Information Systems)
Title of dissertation:
USING INFORMATION VISUALISATION TECHNIQUES TO SUPPORT THE EFFECTIVE ANALYSIS OF LARGE FINANCIAL DATA SETS

Supervisor: Prof JL Wesson
Co-supervisor: Dr NL Cowley

SMUTS, Martin Bradley – **Cum Laude**
(Computer Science and Information Systems)
Title of dissertation:
A FRAMEWORK FOR THE DESIGN OF BUSINESS INTELLIGENCE DASHBOARD TOOLS

Supervisor: Dr BM Scholtz
Co-supervisor: Prof AP Calitz

WHALE, Alyssa Morgan – **Cum Laude**
(Computer Science and Information Systems)
Title of dissertation:
AN E - LEARNING ENVIRONMENT FOR ENTERPRISE RESOURCE PLANNING SYSTEMS

Supervisor: Dr BM Scholtz
Co-supervisor: Prof AP Calitz

MASTER OF SCIENCE (COURSEWORK)

ZEMBE, Pumelela Vincent
(*Applied Mathematics*)

Title of treatise:

A MATHEMATICAL STUDY ON OPTIMAL PREVENTION AND CONTROL STRATEGIES FOR TUBERCULOSIS: CASE STUDY FOR PORT ELIZABETH, SOUTH AFRICA

Supervisor: Mr W Mbava
Co-supervisor: Prof JW Gonsalves

MASTER OF SCIENCE (RESEARCH)

BEYERS, Andrea – **Cum Laude**

(*Botany*)

Title of dissertation:

ECOLOGICAL PRINCIPLES FOR HONEYBUSH (CYCLOPIA SPP.) CONSERVATION AND CULTIVATION

Supervisor: Dr AJ Potts
Co-supervisor: Prof RM Cowling

CARPENTER-KLING, Tegan – **Cum Laude**

(*Zoology*)

Title of dissertation:

THE FORAGING ECOLOGY OF THE GENTOO PENGUIN, PYGOSCELIS PAPUA, AT MARION ISLAND

Supervisor: Dr PA Pistorius
Co-supervisor: Mr J Handley

CHITEKEDZA, Ignatius
(*Mathematical Statistics*)

Title of dissertation:

EFFICIENCY EVALUATION OF SOUTH AFRICAN TERTIARY EDUCATION INSTITUTIONS USING DATA ENVELOPMENT ANALYSIS

Supervisor: Mr WJ Brettenny
Co-supervisor: Dr J Hugo

DALINDYEBO, Litha

(*Geography*)

Title of dissertation:

TOWARDS AN INDUSTRIAL ECOLOGY OF THE NELSON MANDELA BAY METROPOLITAN AREA

Supervisor: Dr AH de Wit

EVERT, Candice Elaine

(*Computer Science and Information Systems*)

Title of dissertation:

A MODEL USING TECHNOLOGICAL SUPPORT FOR TUTORS IN PRACTICAL COMPUTING SESSIONS

Supervisor: Prof CB Cilliers
Co-supervisor: Dr LHJ van der Post

FOURIE, Ilze – **Cum Laude**

(*Botany*)

Title of dissertation:

PRODUCTION POTENTIAL OF LUCERNE (MEDICAGO SATIVA) OVER-SOWN INTO KIKUYU (PENNISETUM CLANDESTINUM) BASED PASTURE

Supervisor: Dr DR du Preez
Co-supervisor: Dr P Botha

GQWAKA, Aviwe Phelele Sebastian – **Cum Laude**

(*Mathematical Statistics*)

Title of dissertation:

EFFICIENCY ANALYSIS OF ELECTRICITY DISTRIBUTION BY SOUTH AFRICAN MUNICIPALITIES: A COST FRONTIER APPROACH

Supervisor: Mr WJ Brettenny
Co-supervisor: Prof GD Sharp

HAWKINS, Magdalena Johanna
(Zoology)

Title of dissertation:

AN EVALUATION OF THE MORPHOLOGICAL AND GENETIC DIVERSITY OF EURYDICE OCCURRING ON SOUTH AFRICAN SANDY BEACHES

Supervisor: Prof R Nel
Co-supervisor: Prof L Hauser

KIDANE, Abiel Tesfai
(Geology)

Title of dissertation:

DEVELOPING VIRTUAL AND REMOTE ACCESS TO SECONDARY ION MASS SPECTROMETRY (SIMS) FOR SOUTH AFRICA; AND FIRST TESTS TOWARDS 'FINGERPRINTING' DIAMONDS USING THEIR STABLE ISOTOPE CHEMISTRY AND MAGNETIC PROPERTIES

Supervisor: Prof MJ de Wit

LATEGAN, Jodi
(Botany)

Title of dissertation:

THE DYNAMICS OF MICROALGAL COMMUNITIES IN RESPONSE TO ENVIRONMENTAL VARIABLES AND NUTRIENT FLUXES IN EPHEMERAL WETLANDS IN THE NELSON MANDELA BAY METROPOLE

Supervisor: Dr PT Gama
Co-supervisor: Dr DM Schael

LE GOUVELLO DU TIMAT, Diane Zelica Marie
(Zoology)

Title of dissertation:

THE EFFECTS OF TURTLE - INTRODUCED NUTRIENTS ON BEACH ECOSYSTEMS

Supervisor: Prof R Nel
Co-supervisors: Dr LR Harris and Ms K Bezuidenhout

MADANHIRE, Tatenda – **Cum Laude**
(Chemistry)

Title of dissertation:

SYNTHESIS AND CHARACTERISATION OF LANTHANIDE COMPLEXES WITH NITROGEN- AND OXYGEN-DONOR LIGANDS

Supervisor: Dr A Abrahams

MARX, Genevève – **Cum Laude**
(Physics)

Title of dissertation:

QUANTITATIVE MICROSTRUCTURAL EVALUATION OF 12CR CREEP AGED STEELS AFTER WELDING

Supervisor: Dr JE Westraadt
Co-supervisor: Prof JH Neethling

MC EWAN, Peter Gareth Fredric – **Cum Laude**
(Mathematical Statistics)

Title of dissertation:

THE GARCH-EVT – COPULA MODEL AND SIMULATION IN SCENARIO – BASED ASSEST ALLOCATION

Supervisor: Prof GD Sharp

MOYO, Cyprian Bertrand
(Chemistry)

Title of dissertation:

DEVELOPMENT OF PALLADIUM - SELECTIVE REAGENTS AND MATERIALS

Supervisor: Prof ZR Tshentu

NCANYWA, Luphumlo Sympathy
(*Chemistry*)

Title of dissertation:

EVALUATION OF P – MENTHANE – 3, 8 - DIOL CITRONELLAL ACETAL AS A SUITABLE BIO-PLASTICIZER FOR POLYVINYL CHLORIDE

Supervisor: Dr NM Vorster

NTSIMANGO, Songeziwe
(*Chemistry*)

Title of dissertation:

THE DEVELOPMENT OF RHENIUM NANORADIOPHARMACEUTICALS

Supervisor: Prof ZR Tshentu
Co-supervisor: Dr A Abrahams

STEYN, Claud
(*Mathematics*)

Title of dissertation:

DERIVATIONS OF C-ALGEBRAS AND VON NEUMANN ALGEBRAS*

Supervisor: Dr M Weigt

SWANEPOEL, Justin Ryan
(*Computer Science and Information Systems*)

Title of dissertation:

THE DESIGN OF A PROXEMIC INTERACTION SYSTEM USING MULTIPLE LOW COST DEVICES

Supervisor: Dr D Vogts
Co-supervisor: Prof JL Wesson

VON BERG, Stuart Raymond Colenzo
(*Chemistry*)

Title of dissertation:

THE CHARACTERIZATION OF AND FORMULATION DEVELOPMENT USING A NOVEL TYRE DEVULCANIZATE

Supervisor: Prof CD Woolard
Co-supervisor: Dr SP Hlangothi

WOODFORD, Grant Warren – **Cum Laude**
(*Computer Science and Information Systems*)

Title of dissertation:

CONCURRENT CONTROLLER AND SIMULATOR NEURAL NETWORK DEVELOPMENT IN THE EVOLUTIONARY ROBOTICS PROCESS

Supervisor: Dr MC du Plessis
Co-supervisor: Mr CJ Pretorius

MASTER OF SCIENCE IN NANOSCIENCE (RESEARCH)

MOTALA, Ismail Mohammed

Title of dissertation:

FORMULATION OF AN OPTIMAL NON-TARGETED LIPOSOME PREPARATION FOR FUSION WITH TUMOUR CELL LINE MEMBRANES

Supervisor: Prof S Roux
Co-supervisor: Prof G Kilian

MUTOMBWERA, Atherton Tiripano – **Cum Laude**

Title of dissertation:

DEVELOPMENT OF APTAMERS AGAINST EPITOPES OF THE EBOLA VIRUS NUCLEOPROTEIN FOR FUTURE APPLICATIONS IN DIAGNOSTICS

Supervisor: Prof S Roux
Co-supervisor: Prof M Meyer

MASTER OF TECHNOLOGY: AGRICULTURE (RESEARCH)

MAJIKI, Fezeka

Title of dissertation:

FACTORS THAT INFLUENCE THE SUSTAINABILITY OF RURAL CROP PRODUCTION COMMUNITY PROJECTS IN THE UMZIMVUBU DISTRICT

Supervisor: Dr TM Pittaway

MAQHAJANA, Mzwanele

Title of dissertation:

PERCEPTIONS AND PRACTICES OF SMALL - SCALE PIGGERY FARMERS TOWARDS ANIMAL WELFARE IN THE NELSON MANDELA BAY METROPOLE

Supervisor: Dr TM Pittaway

MASTER OF TECHNOLOGY: CHEMISTRY (COURSEWORK)

BUKULA, Nwabisa Asanda

(Product and Process Development)

Title of treatise:

OPTIMISATION OF CLEARCOAT VISCOSITY

Supervisor: Dr N Voster

MASTER OF TECHNOLOGY: CHEMISTRY (RESEARCH)

COETZEE, Louis-Charl Cloete

Title of dissertation:

A STUDY OF LANTHANIDE COMPLEXES WITH DI-2-PYRIDYL LIGANDS

Supervisor: Dr A Abrahams

KOORTS, Waldo Pieter Ernst

Title of dissertation:

SCOPING OF A COMMERCIAL MICRO REFORMER FOR THE PRODUCTION OF HYDROGEN

Supervisor: Dr GM Dugmore

Co-supervisor: Mr S Roberts

MASTER OF TECHNOLOGY: GAME RANCH MANAGEMENT (RESEARCH)

FERREIRA, Janene – **Cum Laude**

Title of dissertation:

TRENDS IN THE GAME INDUSTRY IN THE EASTERN CAPE

Supervisor: Prof P duP van Niekerk

DOCTOR OF PHILOSOPHY

ADEFUYE, Ogheneochuko Janet

(Biochemistry)

Title of thesis:

ANTI-DIABETIC AND PHYTOCHEMICAL ANALYSIS OF SUTHERLANDIA FRUTESCENS EXTRACTS

Supervisor: Prof GB Dealtry

AYANKOYA, Kayode Anthony

(Computer Science)

Title of thesis:

A FRAMEWORK FOR GRAIN COMMODITIES TRADING DECISION SUPPORT IN SOUTH AFRICA

Supervisor: Prof AP Calitz

Co-supervisor: Prof JH Greyling

CHABATA, Tichakunda Valentine
(Physics)

Title of thesis:

HIGHER ORDER MODULATION FORMATS FOR HIGH SPEED OPTICAL COMMUNICATION SYSTEMS WITH DIGITAL SIGNAL PROCESSING AIDED RECEIVER

Supervisor: Prof TB Gibbon
Co-supervisors: Prof AWR Leitch and Dr RRG Gamatham

COOMBES, Matthew John
(Physics)

Title of thesis:

THE EFFECT OF SILICA ON THE REDUCTION OF PRECIPITATED IRON - BASED FISCHER - TROPSCH CATALYSTS

Supervisor: Prof JH Neethling
Co-supervisors: Dr EJ Olivier and Dr HE du Plessis

EVANS, Adrian Gareth
(Zoology)

Title of thesis:

THE ECOLOGY OF HARD SUBSTRATE COMMUNITIES IN THE WARM-TEMPERATE AGULHAS BIOREGION

Supervisor: Prof R Nel
Co-supervisor: Dr M Smale

GIDDY, Julia Kathryn
(Environmental Geography)

Title of thesis:

THE INFLUENCE OF THE ENVIRONMENT ON NATURE-BASED ADVENTURE TOURISM

Supervisor: Dr NL Webb

HABARUREMA, Gratien
(Chemistry)

Title of thesis:

RHENIUM COMPLEXES WITH MULTIDENTATE IMINE-, AMINE-, THIONE-, THIOL-, HYDROXY- AND CARBOXAMIDE CHELATES

Supervisor: Prof TIA Gerber

MAFU, Lubabalo Rowan
(Chemistry)

Title of thesis:

DEVELOPMENT OF SMALL PRODUCTION PLATFORM FOR CITRONELLAL PROCESSING

Supervisor: Prof P Watts
Co-supervisor: Prof B Zeelie

MELLY, Brigitte Leigh
(Botany)

Title of thesis:

FACTORS INFLUENCING WETLAND DISTRIBUTION AND STRUCTURE, INCLUDING ECOSYSTEM FUNCTION OF EPHEMERAL WETLANDS, IN NELSON MANDELA BAY MUNICIPALITY (NMBM), SOUTH AFRICA

Supervisor: Dr DM Schael
Co-supervisor: Dr PT Gama

MINNIE, Liaan
(Zoology)

Title of thesis:

EFFECTS OF LETHAL MANAGEMENT ON BLACK-BACKED JACKAL POPULATION STRUCTURE AND SOURCE-SINK DYNAMICS

Supervisor: Prof GIH Kerley

MTIBE, Asanda
(*Textile Science*)

Title of thesis:

BIOCOMPOSITES FROM POLYFURFURYL ALCOHOL REINFORCED WITH MICROFIBRES AND NANOCELLULOSE FROM FLAX FIBRES AND MAIZE STALKS

Supervisor: Prof RD Anandjiwala
Co-supervisor: Dr LZ Langaniso

MUKIZA, Janvier
(*Chemistry*)

Title of thesis:

RHENIUM COMPLEXES WITH POTENTIALLY MULTIDENTATE LIGANDS CONTAINING THE AMINO, IMINO, HYDROXY AND THIOL GROUPS

Supervisor: Prof TIA Gerber

ODEI-ADDO, Frank
(*Biochemistry*)

Title of thesis:

LEONOTIS LEONURUS: UNDERSTANDING THE MECHANISM OF ANTI-DIABETIC ACTION AND INVESTIGATING A NANO DRUG DELIVERY SYSTEM

Supervisor: Prof CL Frost
Co-supervisor: Dr RA Levendal

PEER, Nasreen
(*Zoology*)

Title of thesis:

DIVERSITY AND ECOLOGICAL ROLE OF TRUE CRABS (CRUSTACEA, BRACHYURA) IN THE ST LUCIA ESTUARY, ISIMANGALISO WETLAND PARK, IN RESPONSE TO GLOBAL CHANGE

Supervisor: Prof R Perissinotto
Co-supervisor: Dr NAF Miranda

TWINORUGYENDO, Penninah
(*Environmental Geography*)

Title of thesis:

THE SURVIVAL OF MICRO-ENTERPRISES IN KAMPALA, UGANDA: A SUSTAINABLE LIVELIHOODS APPROACH

Supervisor: Dr NL Webb

VELDKORNET, Dimitri Allastair
(*Botany*)

Title of thesis:

ESTUARINE SPECIES AND HABITATS: DISTRIBUTION AND CONNECTIVITY

Supervisor: Prof JB Adams
Co-supervisor: Dr AJ Potts

DOCTOR OF TECHNOLOGY: CHEMISTRY

MTYOPO, Mteteleli Bethwell

Title of thesis:

THE DEVELOPMENT AND EVALUATION OF A NEW MANUFACTURING PROCESS FOR β - SITOSTEROL - D - GLUCOSIDE

Supervisor: Prof B Zeelie
Co-supervisor: Dr N Mama

DOCTORAL DEGREE CITATIONS

THE DEGREE OF DOCTOR OF PHILOSOPHY (BIOCHEMISTRY)

OGHENECHUKO JANET ADEFUYE

Previous qualifications:

2004 BSc (Biochemistry)

2005 BScHons (Biochemistry)

2012 MSc (Biochemistry)

Olabisi Onabanjo University, Nigeria

Olabisi Onabanjo University, Nigeria

University of Fort Hare, South Africa

Thesis:

ANTI-DIABETIC AND PHYTOCHEMICAL ANALYSIS OF SUTHERLANDIA FRUTESCENS EXTRACTS

The South African medicinal plant *Sutherlandia frutescens* is traditionally used to treat a number of diseases. We, and some other researchers, have shown its effectiveness in preventing and treating the early stages of type-2 diabetes in cell cultures and in animal models; but the levels of activity vary. Janet Adefuye has prepared and compared aqueous and organic extracts from a single source of the plant, in order to identify the best extraction method, to determine differences in the phytochemical compositions of each extract and to investigate the mechanisms of action. She tested these extracts by using human liver cells rendered insulin-resistant by exposure to high concentrations of fructose and insulin, or of the fatty acid palmitate, thereby mimicking diets implicated in diabetes. Janet showed that all the extracts reversed or prevented insulin resistance, by increasing the glucose uptake, decreasing the glucose production (gluconeogenesis), decreasing lipid accumulation, and reversing the expression patterns of three diabetes-associated genes to a pattern similar to that found in insulin-responsive cells. This indicates that any previously observed differences in activity are likely to be associated with differences in growing conditions and the time of harvest of the plant. The optimal anti-diabetic extract was the hot aqueous extract, which she recommends for use as a therapy. She compared the composition of the extracts by using the untargeted triple time of flight-liquid chromatography mass spectrometry. Using two databases of known phytochemicals and anti-diabetic compounds, she identified potentially active components in each extract. The patterns of compounds found in each extract varied; and no single compound was found in all the extracts, indicating that, rather than a single active compound, multiple combinations of these compounds work in synergy to produce the full anti-diabetic activity of *Sutherlandia frutescens*.

THE DEGREE OF DOCTOR OF PHILOSOPHY (COMPUTER SCIENCE)

KAYODE ANTHONY AYANKOYA

Previous qualifications:

1997	Higher National Diploma	The Polytechnic of Ibadan, Nigeria
2001	Post Graduate Diploma	University of Ibadan, Nigeria
2014	Master of Business Administration	Nelson Mandela Metropolitan University

Thesis:

A FRAMEWORK FOR GRAIN COMMODITIES TRADING DECISION SUPPORT IN SOUTH AFRICA

This doctoral research investigated a Decisive Support System for grain commodity trading in South Africa. Many of the grain commodity farmers have limited skills and resources to make decisions that would enable them to get the best prices for their commodities. This is because of the complexities associated with monitoring several local and international datasets that influence the grain commodities market. Hence, many of the grain commodity farmers do not take full advantage of the different marketing strategies available for optimum price discovery. The candidate identified a list of local and international factors that influence grain commodities' trading in South Africa. By adapting the evolving Big-Data concepts, tools and techniques, the candidate was able to acquire, integrate and process the relevant datasets into a consolidated data source for providing decisive support for grain commodity trading in South Africa. Thereafter, the candidate implemented a predictive model for grain-commodity prices, using artificial neural networks. The results of the model were evaluated by comparing the predictions from the model to those of expert grain commodity traders across the country; and the developed model was found to out-perform several of their predictions. Based on the findings, the candidate proposed a framework that can be followed in developing a decisive support system that can provide necessary aid to farmers in getting the best prices for their commodities in real-time. This doctoral work has received attention in the Big Data and Agricultural Economics academic communities, both locally and internationally.

THE DEGREE OF DOCTOR OF PHILOSOPHY (PHYSICS)

TICHAKUNDA VALENTINE CHABATA

Previous qualifications:

1998 Licentiate Degree in Physics with Education University of Enrique Joseph Varona
2004 MSc (Lasers and Applied Optics) National University of Science and Technology

Thesis:

HIGHER ORDER MODULATION FORMATS FOR HIGH SPEED OPTICAL COMMUNICATION SYSTEMS WITH DIGITAL SIGNAL PROCESSING AIDED RECEIVER

The telecommunication industry faces tremendous bandwidth demands from drivers beyond traditional Internet applications (email, Google etc.); and these demands now include social and business networking (Facebook, LinkedIn), video and voice and conferencing (Google Talk, Skype), 3G smart phones and tablet-computing (iPhone, Blackberry, iPad), video and TV-over-Internet services (Youtube, Netflix), and cloud computing. In order to cope with these trends, there is the need to research advanced optical-fibre technologies for transmitting high bandwidth in optical fibre networks. This work tackles the challenge by using advanced modulation techniques to encode the data and digital-signal processing (DSP) aided receivers to recover the signal.

By making use of multi-level intensity modulation, Tichakunda demonstrates high spectral efficiency transmission at 20 Gbps. The digital signal-processing techniques implemented in the receiver allow for cost-effective strategies for dealing with system impairments and for decoding advanced modulation formats. Furthermore, coherent detection is implemented for increased receiver sensitivity, allowing one to overcome system penalties, such as dispersion and facilitating extended reach. For example, a 10 Gbps signal is experimentally transmitted error-free over 26 km of optical fibre by using coherent detection to improve the receiver sensitivity by 3.5 dB. Furthermore, a four-level pulse amplitude modulation (4-PAM) signal is generated at 20 Gbps and transmitted over 25 km of optical fibre – before being detected and demodulated error-free by means of a custom DSP-aided receiver developed in the research.

Tichakunda has published 12 papers at local and international conferences, with two Journal articles in submission. Valentine's work provides a significant contribution in research to high-speed Internet and telecommunication networks.

THE DEGREE OF DOCTOR OF PHILOSOPHY (PHYSICS)

MATTHEW JOHN COOMBES

Previous qualifications:

2009	BSc (Applied Mathematics, Chemistry, and Physics) (<i>Cum Laude</i>)	Rhodes University
2010	BScHons (Chemistry and Physics) (<i>Cum Laude</i>)	Rhodes University
2012	MSc (Chemistry) (<i>Cum Laude</i>)	Rhodes University

Thesis:

THE EFFECT OF SILICA ON THE REDUCTION OF PRECIPITATED IRON - BASED FISCHER - TROPSCH CATALYSTS

This thesis focuses on the preparation and characterization of silica-promoted iron oxide particles, which are the precursors of a Fischer-Tropsch (FT) catalyst. The FT process is used to produce petroleum-based hydrocarbon products, using carbon monoxide and hydrogen gas supplied through the gasification of coal and natural gas. This is of enormous importance to the South African economy; since it allows for the production of such hydrocarbon products from non-crude oil feedstocks. FT synthesis typically occurs in the presence of iron- or cobalt-based catalysts, the properties of which are affected by composition and structure – right down to the atomic level. The atomic-level study of catalysts necessitates the use of the only atomic resolution transmission electron microscope (HRTEM) in Africa (at NMMU).

The reduction of the catalysts in hydrogen was carried out using *in situ* gas flow HRTEM cells in the United Kingdom and the United States. These cells allowed the catalyst samples to be studied in the HRTEM at temperature and pressure conditions approaching those experienced in a real reactor environment.

This thesis represents a very comprehensive, multidisciplinary and advanced research project. Cutting-edge techniques were used for the analyses of the catalysts. The candidate prepared his own silica-promoted iron oxide samples; and the characterizations were carried out using techniques, which include scanning electron microscopy, transmission electron microscopy (TEM), powder X-ray diffraction (PXRD), Mössbauer spectroscopy, magnetic susceptibility measurements, Raman spectroscopy, thermo-gravimetric analysis and nitrogen physiosorption. The reduction in a hydrogen atmosphere was investigated, using temperature programmed reduction, *in situ* PXRD and TEM.

The results obtained in this thesis have contributed to the fundamental understanding of iron-silica interactions within such catalytic systems. This allows for the design of more effective catalysts. The whole thesis can be described as cutting-edge; and it is of a very high international standard.

THE DEGREE OF DOCTOR OF PHILOSOPHY (ZOOLOGY)

ADRIAN GARETH EVANS

Previous qualifications:

2000 BSc

University of Cape Town

2001 BScHons

University of Cape Town

2005 MSc

University of Cape Town

Thesis:

THE ECOLOGY OF HARD SUBSTRATE COMMUNITIES IN THE WARM-TEMPERATE AGULHAS BIOREGION

Marine hard substrates, such as sub-tidal reefs and rocky shores, are ecosystems of great economic and scientific value, due to the diverse assemblage of benthic organisms they harbour. They are often heavily impacted by human use and frequently in need of protection. The Sardinia Bay Marine Protected Area is an MPA that was established to protect the shoreline near Port Elizabeth. It is one of the smallest, but oldest MPAs in the country. This thesis describes the ecology of benthic hard substrate communities along the exposed coastline of the warm-temperate Agulhas bioregion, including the effects of protection in the Sardinia Bay Marine Protected Area (MPA). The study has investigated the role of different physical drivers, such as wave action on community structure – in both the intertidal and shallow sub-tidal area, during calm and disturbed conditions. The study first outlined a conceptual model describing across- and along-shore community patterns to be used in marine-conservation planning activities. It has also provided evidence that the protection by the Sardinia Bay MPA has increased the abundance of fish species; but indirectly and unpredictably, it has impacted benthic assemblages through complex food-web dynamics. The study has made a novel contribution to our understanding of small, old marine protected areas; and it will be useful in marine conservation and management.

THE DEGREE OF DOCTOR OF PHILOSOPHY (ENVIRONMENTAL GEOGRAPHY)

JULIA KATHRYN GIDDY

Previous qualifications:

2010 BSc

2011 BScHons(GIS)

2013 MSc (Geography)

University of Michigan

Nelson Mandela Metropolitan University

Nelson Mandela Metropolitan University

Thesis:

THE INFLUENCE OF THE ENVIRONMENT ON NATURE-BASED ADVENTURE TOURISM

This doctoral thesis has sought to examine nature-based adventure tourism within a human-environmental interaction framework. As such, it has been able to determine the strength and the nature of environmental influences on the participants. Previously, studies in this field used one of three themes: an analysis of the psychological notions of 'risk' and 'thrill'; the commodification of adventure tourism; and the impact of such activities on the natural environment. Thus, this study represents an original contribution to the field of inquiry. Particular aspects that were analysed included an assessment of the 'value system' of the participants, the strength and nature of the environmental influences underlying their participation, and the role of the environment in enhancing their experiences and their levels of satisfaction. A sample of adult participants was drawn from tourist adventure sites along the Cape South Coast; the data collection was conducted by using questionnaires based primarily on five-point Likert scales; and the results were analysed statistically. The important findings can be listed as follows: The 'value-system' of adventure-tour participants exhibited moderate environmental values; environmental factors emerged strongly in both the internal and the external motivations of the tourists; and the environment was proven to significantly enhance their experiences and their satisfaction. The study culminated in the development of a new framework, which could be used to test such findings in different contexts. Thus, the conclusion is reached, that the influence of the environment on adventure-tour participants is substantial, and that this approach warrants continued investigation. Furthermore, it has considerable relevance to policy debates in the industry.

THE DEGREE OF DOCTOR OF PHILOSOPHY (CHEMISTRY)

GRATIEN HABARUREMA

Previous qualifications:

2010 BSc (Applied Chemistry)

2013 BScHons

2014 MSc (*Cum Laude*)

Kigali Institute of Science and Technology

Nelson Mandela Metropolitan University

Nelson Mandela Metropolitan University

Thesis:

RHENIUM COMPLEXES WITH MULTIDENTATE IMINE-, AMINE-, THIONE-, THIOL-, HYDROXY- AND CARBOXAMIDE CHELATES

This study was an extensive project on the synthesis and structural characterization of new compounds of the metal rhenium for applications in radiopharmacy, homogeneous catalysis, chemotherapy and chemosensing.

The interaction of rhenium in the oxidation states +I, +III and +V with a variety of biologically active organic molecules, like thiosemicarbazones, carboxamides, pyrazines, imidazoles, pyrimidines, carboxylic acids and diamines were investigated; and novel products were isolated and characterized.

Several major contributions were made to extend the boundaries of knowledge of basic co-ordination chemistry. The first examples of the co-ordination of multidentate ligands as iminium-phenone zwitter-ions to a metal ion were presented; and a synthesis protocol was established for these compounds. Another was the importance of the donor-atom type and the backbone-chain length on the formation of bridges between rhenium(I) atoms, which would have an impact on the synthesis of other multinuclear transition-metal complexes. This study also presents the first example of a fifteen-membered chelate ring in the co-ordination sphere of any metal.

The major findings of this study were published in various publications in the international literature; and the impact is such that many postgraduate MSc and PhD studies will be initiated from these novel results.

THE DEGREE OF DOCTOR OF PHILOSOPHY (CHEMISTRY)

LUBABALO ROWAN MAFU

Previous qualifications:

2008 BSc (Chemistry and Computer Science)

University of Fort Hare

2009 BScHons (Chemistry)

University of Fort Hare

2012 MSc (Chemistry)

Nelson Mandela Metropolitan University

Thesis:

DEVELOPMENT OF SMALL PRODUCTION PLATFORM FOR CITRONELLAL PROCESSING

In South Africa there is acceptance across government and industry that a key challenge to the future growth and sustainability of the chemical sector is to increase local manufacturing. Current manufacturing protocols have been the same for decades; and they are not competitive in a global market. NMMU is working to provide a step change in manufacturing technology that will increase the availability and affordability of a variety of chemical products, with a particular emphasis on South Africa's needs, in order to make the country more self-reliant.

In his thesis, Lubabalo Mafu presents a substantive body of research into the development of continuous-flow reactor systems for a variety of chemical processes. He initially demonstrated that he could use natural citronellal oil, extracted from plants, and convert it into isopulegol and *para*-menthane-3,8-diol in high yield. These added-value materials were subsequently used as a feedstock for the microwave-assisted continuous flow synthesis of a variety of di-ester derivatives, which are potential plasticisers. This strategy allows one to have accurate control over the reaction temperature and substrate residence times. Moreover, it employs polymer-supported Scandium triflate as an environmentally friendly catalyst, resulting in green chemical methodology.

The candidate has presented his results at national conferences, as well as at the Flow Chemistry Congress, San Diego, USA. There is little doubt that the candidate has made a significant contribution in establishing continuous-flow technology in South Africa.

THE DEGREE OF DOCTOR OF PHILOSOPHY (BOTANY)

BRIGITTE LEIGH MELLY

Previous qualifications:

2008	BSc (Zoology and Geography) with Distinction	Rhodes University
2009	BScHons (Geography) with Distinction	Rhodes University
2011	MSc (Geography) with Distinction	Rhodes University

Thesis:

FACTORS INFLUENCING WETLAND DISTRIBUTION AND STRUCTURE, INCLUDING ECOSYSTEM FUNCTION OF EPHEMERAL WETLANDS, IN NELSON MANDELA BAY MUNICIPALITY (NMBM), SOUTH AFRICA

This multi-disciplinary study has used GIS modelling and physical and biological field data to delineate and classify more than 1700 wetlands. This was done in a systematic manner, to test the new national wetland classification system in the Eastern Cape, South Africa. Her study has significantly increased the number of wetlands by 65% - from those previously mapped for the NMBM area. She further demonstrated that the majority of these wetland ecosystems are small, temporary or ephemeral, only filling seasonally or intermittently during times of adequate rainfall. This makes these cryptic wetland systems highly vulnerable to anthropogenic disturbance, especially when they are dry. For the first time, the vegetation and aquatic fauna have been characterised, including a description of the ecosystem functioning for a subset of these ephemeral wetlands.

The importance of these wetlands and their connectivity to each other in the broader landscape has been demonstrated; as they provide important corridors for the dispersal of plant and animal species. We now have a baseline of fundamental ecological knowledge of these wetland systems, from which sound decisions can be made regarding their management and conservation for our area, and for the country as whole. Brigitte Melly has made a novel contribution to wetland science; and she has vastly improved our understanding of wetlands in this region. The broad significance of her findings should have a very practical application. Brigitte's work has not only been incorporated into the national South African Wetland database; but it is also currently being used by the NMBM – for urban and conservation planning.

THE DEGREE OF DOCTOR OF PHILOSOPHY (ZOOLOGY)

LIAAN MINNIE

Previous qualifications:

2006	BSc	Nelson Mandela Metropolitan University
2007	BScHons	Nelson Mandela Metropolitan University
2009	MSc	Nelson Mandela Metropolitan University

Thesis:

EFFECTS OF LETHAL MANAGEMENT ON BLACK-BACKED JACKAL POPULATION STRUCTURE AND SOURCE-SINK DYNAMICS

Black-backed jackals *Canis mesomelas*, the dominant predator of livestock in South Africa, are hunted by livestock farmers to reduce predation impacts; but they still persist widely. The population-level effects of killing carnivores would depend on their life-histories and social structures. Smaller canids, like jackals, are highly adaptable and display variable population-level responses to mortality sources, which may contribute to their persistence. For his thesis, Liaan hypothesized that the spatial variation in hunting between farms and reserves results in the formation of a source-sink population structure, which contributes to the persistence of jackals. He investigated the ecology and population dynamics of jackals in response to this heterogeneous anthropogenic mortality. He showed that hunting pressures result in the formation of distinct subpopulations, with asymmetrical dispersal (i.e. compensatory immigration) from un hunted reserves to neighbouring hunted farms. This is hypothesized to be a response to density-dependence competition on reserves and the availability of attractive, low-density habitats on farms. He also showed that these subpopulations display asynchronous demographics, with farm populations, having a relatively younger age structure and an associated increase in reproductive output (i.e. compensatory reproduction). This confirms the formation of a hunting-induced source-sink system. Additionally, he showed that jackals have a catholic diet, which confers a level of adaptability to direct (anthropogenic mortality, prey provisioning) and indirect (alteration in prey base) habitat modifications. This dietary flexibility allows jackals to obtain the appropriate resources to achieve reproductive condition at a younger age on farms. The relatively better body condition of younger jackals in sink habitats (farms) allows for compensatory reproduction, which contributes to the persistence of jackals on the landscape. Thus, the lethal management of jackals on farms has unintended consequences that may undermine the effectiveness of this intervention. These findings advance our understanding of small carnivore ecology; and they have direct relevance to the policy and management thereof.

THE DEGREE OF DOCTOR OF PHILOSOPHY (TEXTILE SCIENCE)

ASANDA MTIBE

Previous qualifications:

2010 BSc

2011 BScHons (Chemistry)

2013 MSc (Chemistry)

University of Fort Hare

University of Fort Hare

University of Johannesburg

Thesis:

BIOCOMPOSITES FROM POLYFURFURYL ALCOHOL REINFORCED WITH MICROFIBRES AND NANOCELLULOSE FROM FLAX FIBRES AND MAIZE STALKS.

There has been a growing research interest in the development of new environmentally friendly materials with better performance at lower cost and with recyclability and renewability. This results in the increased utilization of biobased resources for the development of value-added products. This work is aimed at producing the biocomposites from polyfurfuryl alcohol reinforced with micro- and nano-scaled cellulose extracted from flax fibres and maize stalks.

This thesis has focused on the extraction of cellulose from the flax fibres and maize stalks by chemical (sodium hydroxide, sodium chlorite, potassium hydroxide) treatments and mechanical processing in a supermass colloid. The fibres obtained were characterized by different characterization techniques. Furthermore, nano-scaled cellulose (cellulose nanocrystals (CNCs) and cellulose nanofibres (CNFs)) were also extracted from the purified cellulose obtained from the flax fibres and the maize stalks. The CNCs were extracted by sulphuric acid hydrolysis; while the CNFs were extracted by means of mechanical grinding in a supermass colloid. The physicochemical properties of the extracted nano-scaled celluloses, such as the crystallinity index, dimensions, dispersion state, pyrolysis behaviour, surface charge and transparency were investigated. Also, nanopapers and micropapers were produced from the nano- and micro-scaled celluloses, respectively. The thermal, mechanical and optical properties of the papers were compared. Moreover, the nano-scaled celluloses obtained from the maize stalks and the flax fibres treated with sodium hydroxide were used as reinforcements for developing the PFA biocomposites. The properties (thermal, mechanical and thermomechanical) of the developed PFA biocomposites were investigated and compared, in order to explore their applications.

THE DEGREE OF DOCTOR OF PHILOSOPHY (CHEMISTRY)

JANVIER MUKIZA

Previous qualifications:

2011 BSc

2013 BScHons

2014 MSc (*Cum Laude*)

National University of Rwanda

Nelson Mandela Metropolitan University

Nelson Mandela Metropolitan University

Thesis:

RHENIUM COMPLEXES WITH POTENTIALLY MULTIDENTATE LIGANDS CONTAINING THE AMINO, IMINO, HYDROXY AND THIOL GROUPS

This study focused on the co-ordination chemistry of the metal rhenium, which was shown to be the most versatile of all transition metals, for possible applications in catalysis, and as therapeutic agents in nuclear medicine.

One of the highlights of the study was the synthesis and characterization of a new class of metal compound never observed before in chemistry, containing triple bonds between metal atoms in the oxidation states of 3, 5 and 4, with bridges by multidentate chelates. This result has opened a new research field in general co-ordination chemistry, which may find new applications in catalysis, cancer therapy and molecular switches, and has created widespread international interest after the publication of the results.

Another aspect of the project was a systematic study of rhenium complexes of orotic acid, which has been found to display anti-tumour activity. It was found that the bonding mode of orotate to rhenium is different to that of other similar metals, and can be fine-tuned by ancillary ligands, which may influence its activity.

This study also led to complexes of rhenium that catalyse the decarboxylation of organic acids, similar to the functioning of the enzyme OMP decarboxylase, which is of interest in the biosynthesis of nucleic acids in the body.

This thesis has produced high-quality results that have led to various publications in the international literature. It is ground-breaking research, which has opened many research avenues that should lead to many postgraduate MSc and PhD studies to follow.

THE DEGREE OF DOCTOR OF PHILOSOPHY (BIOCHEMISTRY)

FRANK ODEI-ADDO

Previous qualifications:

2005	BSc	Nelson Mandela Metropolitan University
2006	BScHons	Nelson Mandela Metropolitan University
2009	BSc Master's	Nelson Mandela Metropolitan University

Thesis:

LEONOTIS LEONURUS: UNDERSTANDING THE MECHANISM OF ANTI-DIABETIC ACTION AND INVESTIGATING A NANO DRUG DELIVERY SYSTEM

Diabetes mellitus is a metabolic disease characterised by hyperglycaemia, resulting from defects in insulin secretion, insulin action, or both. *Leonotis leonurus* is a medicinal plant frequently used in South Africa because of its anti-diabetic, antiplatelet, anti-inflammatory and anti-coagulation properties. In the present study, the mechanism by which *L. leonurus* and marrubiin (one of the components) exert their anti-diabetic activities, the cross-talk between the peripheral tissues, and a nano-drug delivery system were investigated.

The peripheral tissues isolated from an obese rat model were used to investigate the changes in gene expression for selected adipokines, by using a quantitative polymerase chain reaction (RT-qPCR) and proteins implicated in Type-2 diabetes (T2D). The results indicated that the *L. leonurus* extract significantly enhances the gene expression of adiponectin, peroxisome proliferator-activated receptor gamma (PPAR- γ), glucokinase (GK), uncoupling protein-2 (UCP-2) and reduced leptin in adipose tissue. However, resistin, glucose transporters (GLUT), fatty acid synthase (FAS), insulin receptor substrate -1 (IRS-1) and the phosphor-enolpyruvate carboxykinase (PEPCK) gene expression were not affected. Marrubiin decreased the gene expression of leptin and resistin; and the increased IRS-1 and glucokinase in adipose tissue. In liver and muscle tissues, marrubiin and the *L. leonurus* extract reduced the gene expression of PPAR- γ , IRS-1, glucokinase and PEPCK. An *in vitro* study was completed to determine the crosstalk between the respective peripheral tissues and the pancreatic tissue. Only the conditioned media from adipose tissue significantly enhanced the insulin secretion.

Various nano-formulations of *L. leonurus* extract were prepared; and their effect on the cytotoxicity (in Chang liver and INS-1 cells), insulin-mediated glucose uptake (Chang liver cells) and insulin secretion (INS-1) were investigated. Of the three formulations prepared, the nano-structured lipid formulation (NLC) of the plant extract was not cytotoxic to either INS-1 or Chang liver cells. The NLC formulation significantly enhanced the glucose uptake in Chang liver cells; and it significantly improved the chronic insulin release in INS-1 cells. This formulation should be the starting point for future studies.

Based on the above findings, it was noted that, both *L. leonurus* and marrubiin exerted an insulintropic effect via adipose tissue on pancreatic β -cells. The findings in the *in vivo* study showed that marrubiin and the *L. leonurus* extract were employing their major anti-diabetic action via the adipose tissue.

THE DEGREE OF DOCTOR OF PHILOSOPHY (ZOOLOGY)

NASREEN PEER

Previous qualifications:

2011 BSc (Marine Biology) (*Cum Laude*)

University of KwaZulu-Natal

2012 BScHons (Marine Biology) (*Summa Cum Laude*)

University of KwaZulu-Natal

Thesis:

DIVERSITY AND ECOLOGICAL ROLE OF TRUE CRABS (CRUSTACEA, BRACHYURA) IN THE ST LUCIA ESTUARY, ISIMANGALISO WETLAND PARK, IN RESPONSE TO GLOBAL CHANGE

This work has explored novel concepts of crab vulnerability, recovery and resilience under unprecedented climatic changes in South Africa's first UNESCO World Heritage Site. By showing how large salinity shifts and prolonged interruption of the marine connection can drastically affect brachyuran diversity and community structure in St. Lucia Lake, the potential cascading effects on ecosystem functioning were estimated. Only 15 crab species were recorded within the system during this study, compared to the 26 species that were known to occur prior to the recent environmental shift (i.e. 58% decline). The impact of this biodiversity collapse has negatively affected the associated mangrove ecosystem in particular, with the entire community of fiddler crabs persisting only in a small area near the estuary mouth. Gut fluorescence measurements have shown that, due to a lack of tidal influence, their grazing impact on microphytobenthic biomass may become unsustainable. However, although adults are able to survive in this environment, the larvae require a marine connection; and they are thus unable to tolerate the wide fluctuations in salinity currently prevailing in the system. The study concludes that brachyurans are key factors to consider during conservation planning, as they are crucial to maintaining ecosystem function in the face of environmental change. This research is of global relevance, as many similar estuarine and coastal lakes around the world are currently experiencing similar state shifts. All six chapters included in the thesis have already been published in the peer-reviewed literature; and the project results have also earned Nasreen the NRF award of Next-Generation Researcher of the Year for 2015.

THE DEGREE OF DOCTOR OF PHILOSOPHY (ENVIRONMENTAL GEOGRAPHY)

PENNINAH TWINORUGYENDO

Previous qualifications:

1995	BA (Education)	Makerere University
2003	MEd	Makerere University
2005	MPhil	Norwegian University of Science and Technology

Thesis:

THE SURVIVAL OF MICRO-ENTERPRISES IN KAMPALA, UGANDA: A SUSTAINABLE LIVELIHOODS APPROACH

This purpose of this thesis was to explain the resilience of certain micro-enterprises (MEs) in Kampala, Uganda – by focusing on their vulnerability, the assets that they brought to bear on the situation, the role of non-governmental organizations and government institutions in supporting MEs, and the strategies used by ME owners, themselves. As such, it adopts the Sustainable-Livelihoods approach – an approach that has not been used in Kampala before. Thus, it makes a valuable contribution to the field. Designed as a qualitative study, it used in-depth interviews and focus-group discussions. The major findings on vulnerability were linked to: the rising cost of materials; unfair licensing; the struggle to win tenders; local and foreign competition; and the disruption of utilities. The assets used to sustain the welfare of the MEs included: making use of a range of skill-acquisition strategies; leveraging networks; and pooling resources. Particular financial assets used by MEs revolved around informal savings and credit schemes; but the support given to the MEs through government agencies and NGOs was difficult to assess. Several important strategies were used by ME owners. One of these involved linking with formal construction companies. In addition, temporary workshops constructed out of wood-and-iron, were common. These increased mobility and allowed the re-use of materials. Furthermore, MEs manufactured their own tools, developed new marketing techniques, and diversified their income-generating activities. The significance of this study is two-pronged. It demonstrates that the resilience of MEs does depend on their own positive qualities, but also on an increasingly business-friendly national and international economic environment.

THE DEGREE OF DOCTOR OF PHILOSOPHY (BOTANY)

DIMITRI ALLASTAIR VELDKORNET

Previous qualifications:

2009	BSc	Nelson Mandela Metropolitan University
2010	BScHons	Nelson Mandela Metropolitan University
2012	MSc	Nelson Mandela Metropolitan University

Thesis:

ESTUARINE SPECIES AND HABITATS: DISTRIBUTION AND CONNECTIVITY

This study explored the distribution of estuarine macrophyte genetic lineages, species and habitats in relation to environmental gradients at various spatial scales. A database was assembled to determine the area and species composition of different estuarine habitats. This can now be used to retrieve information as a baseline for further monitoring and conservation planning. Research has shown that macrophytes occur over a wide range of physiochemical conditions, suggesting that these species have great genetic and phenotypic variation to occupy broad niche ranges. In eight estuaries along the South African coast, sediment and groundwater characteristics were measured in quadrants spanning the salt marsh, ecotone and terrestrial habitats. The results suggested that, in the absence of competition and disturbance at the salt marsh-terrestrial boundary, salt marshes would be unaffected by sea-level rise; and they would migrate landward. However, disturbance at the landward margin of salt marshes has already resulted in changes in species composition, and altered environmental conditions. This promotes the encroachment of terrestrial alien invasive plants, leading to a loss of connectivity. A holistic assessment of land-cover changes showed that only 28% of South African estuaries still remain in a natural state. The delineation of all estuaries needs to be consistent and inclusive of all estuarine physical and biological processes, in order to curb future changes.

The research results have been used in national assessments of estuarine health; and they have made a significant contribution to estuary-management plans. In addition, three scientific articles have been published from the thesis; and two more are currently under review.

THE DEGREE OF DOCTOR OF TECHNOLOGY: CHEMISTRY

MTETELELI BETHWELL MTYOPO

Previous qualifications:

2002 NDip (Analytical Chemistry)

PE Technikon

2004 BTech (Chemistry)

PE Technikon

2005 MTech (Chemistry)

Nelson Mandela Metropolitan University

Thesis:

THE DEVELOPMENT AND EVALUATION OF A NEW MANUFACTURING PROCESS FOR β -SITOSTEROL - D - GLUCOSIDE

β -Sitosterol-D-Glucoside is a derivative of the plant sterol β -Sitosterol that is commonly used as an immune-system modulator in health supplements and certain food products. Isolation of β -Sitosterol from plant material results in complex mixtures of plant sterols, which require isolation and purification of the β -Sitosterol before it can be processed into the desired β -Sitosterol-D-Glucoside. Such purification procedures are not only very cumbersome, but also very expensive. The high costs associated with the production of β -Sitosterol-D-Glucoside limits the potential application of the product, especially in products that could be used for hunger relief and disaster relief.

In his thesis, Mtheza Mtyopo presents a study that attempts to produce the target β -Sitosterol-D-Glucoside product directly from the original plant sterol mixture, followed by separation only at the end of the synthetic step. The use of an alternative catalyst for the synthetic step allows some selectivity towards β -Sitosterol over other plant sterols, thereby reducing the demands, hence cost, on the purification step to some extent. As with any technological development project, the thesis elicits several questions that would need to be addressed before the proposed approach could become technically and economically viable.



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 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*!