Gaudeamus

Gaudeamus igitur, juvenes dum sumus,
Gaudeamus igitur, juvenes dum sumus,
Post jucundam juventutem, post
molestam senectutem,
Nos habebit humus, nos habebit humus.

Ubi sunt qui ante nos in mundo fuere?
Ubi sunt qui ante nos in mundo fuere?
Vadite ad superos, transite ad inferos,
Quos si vis videre, quos si vis videre.

Vita nostra brevis est, brevi finietur,
Vita nostra brevis est, brevi finietur,
Venit mors velociter, rapiit nos atrociter,
Nemini parceetur, nemini parceetur.

Vivat Academia, vivant Professores,
Vivat Academia, vivant Professores,
Vivat membrum quodlibet, vivant
membra quaelibet,
Semper sint in flore, semper sint in flore.
National Anthem

Nkosi sikelel’ iAfrika
Maluphakanyisw’ uphondo lwayo,
Yizwa imithandazo yethu,
Nkosi sikelela, thina lusapho lwayo.

Morena boloka setjhaba sa heso,
O fedise dintwa la matshwenyeho,
O se boloke, O se boloke setjhaba sa heso,
Setjhaba sa South Afrika – South Afrika.

Uit die blou van onse hemel,
Uit die diepte van ons see,
Oor ons ewige gebertes,
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.
The University of Cape Town gratefully acknowledges the sustained contributions of the following partners. Their support has made possible curriculum, staff and student transformation, improved student access to tertiary education, programmes that promote social engagement and community upliftment, as well as increased research capacity.

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Mr Sandile Zungu

Thank you for helping UCT to pursue its vision of being a world class, research-led African university
ORDER OF PROCEEDINGS

Academic Procession.
(The congregation is requested to stand as the procession enters the hall and is invited to participate in the singing of Gaudeamus)

The Acting Vice-Chancellor, Professor DP Visser, will constitute the congregation.

The National Anthem.

The University Statement of Dedication will be read by a representative of the SRC.

Musical Item.

Welcome by the Deputy Vice-Chancellor, Professor C Soudien.

Professor Soudien will present (in absentia) Zenda Woodman for the Distinguished Teacher Award.

Professor Soudien will present the Social Responsiveness Award to the Environmental Evaluation Unit.

The graduands will be presented to the Acting Vice-Chancellor by the Dean of the Faculty, Professor AP le Roex, assisted by the Deputy Dean, Associate Professor J O’Riain.

The Acting Vice-Chancellor will congratulate the new graduates.

Professor Soudien will make closing announcements and invite the congregation to stand.

The Acting Vice-Chancellor will dissolve the congregation.

The procession, including the new graduates, will leave the hall.
(The congregation is requested to remain standing until the procession has left the hall)

The music for the recessional march has been composed by Professor Peter Klatzow.
DISTINGUISHED TEACHER AWARD

The Distinguished Teacher Award, given one only to an individual, recognises teaching at any or all levels by a member of the faculty that has made a significant and lasting impression on students.

Previous recipients in the Faculty of Science have been:

1981: AC Brown (Zoology)
1982: KI Pay (Applied Mathematics)
1983: GM Branch (Zoology)
1984: JH Webb (Mathematics)
1985: OAM Lewis (Botany)
1986: BR Davies (Zoology)
1987: DR Woods (Microbiology)
1990: HST Driver (Physics)
1992: AN Rynhoud (Mathematics)
1994: D Allison (Mathematics)
1996: DJ Bradfield (Statistical Sciences)
1997: JJ Conradie (Mathematics)
1998: MD Picker (Zoology)
1999: DE Rawlings (Microbiology)
2000: JR Moss (Chemistry)
2001: MJ Hall (Archaeology)
2002: VA Abratt (Molecular and Cell Biology)
2003: TJ Egan (Chemistry)
2004: DL Reid (Geological Sciences)
2005: SE Oldfield (Environmental and Geographical Science)
2006: DW Gammon (Chemistry)
2007: B Davidowitz (Chemistry)
2008: S Govindasamy Mundree (Molecular and Cell Biology)
2009: RR Ackermann (Archaeology)
2010: MJ O’Riaain (Zoology)
2011: GS Smith (Chemistry)
DISTINGUISHED TEACHER AWARD

The following member of the Faculty of Science has been chosen for this award in 2012:

Zenda Woodman  
Lecturer in the Department of Molecular and Cellular Biology

Dr Woodman’s key focus on entering the lecture theatre is to breach the divide between students and the lecturer. Students need to feel that they are in a safe environment where learning will be supported and encouraged. She believes that participation during class is vital to learning and has three objectives for each lecture. The first is to explain concepts simply in language and terms with which students are familiar and the second is to ensure that students feel comfortable during the lecture. Thirdly, she consolidates their knowledge before the end of the lecture using a question and answer session.

Dr Woodman wants lectures to be fun and has tried different methods to encourage active participation. She uses humour and gives rewards as ice breakers. During question and answer sessions she encourages students to explain concepts to each other in order to facilitate a collegial group learning environment. She assures her students that she is committed to their success; and attempts to memorise names and faces as she believes that loss of anonymity leads to students’ becoming accountable for their own learning. She views tutorials and practicals as opportunities to engage students whose learning styles are incompatible with the lecture format. Students clearly respond to Dr Woodman’s teaching philosophy as her ratings in student evaluations are consistently higher than other lecturers on the course and include statements such as: “thank you for finding my light bulb and switch”. Not only is she an excellent teacher at the undergraduate level, her postgraduate students note that she acts as a mentor and is always ready to discuss ideas related to teaching and research. Her influence extends beyond the classroom in that she is a wonderful role model to science students, in particular those who are female and from disadvantaged backgrounds. These attributes are the hallmark of a Distinguished Teacher.
SOCIAL RESPONSIVENESS AWARD

The Social Responsiveness Award provides an institutional signal to members of the University that social responsiveness is an important priority.

The Environmental Evaluation Unit (EEU)

The EEU’s research activities are rooted in the arena of natural resource management and its interface with communities. It works to enhance understanding of the governance of complex human-ecological systems through collaborative interdisciplinary research across natural resource sectors, mostly in poor and marginalised communities. It works with a range of civil society and NGO partners (including Masifundise, Coastal Links, the Legal Resources Centre, International Collective in Support of Fishworkers (ICSF), Biowatch, the South African San Council and the Working Group for Indigenous Minorities in Southern Africa) and various government departments.

Evidence of shared planning and decision-making is evident in its workshops with communities; these gather information for resource management planning processes (e.g., at the Olifants estuary, Kogelberg and Dwesa-Cwebe); and through active facilitation of co-management processes in communities such as Hangberg, Ebenhaeser and Kleinmond, as well as development of guidelines and academic publications on lessons learned from co-management processes. The Unit’s work in poor rural communities in South Africa (Sokhulu, Mbonambi, Mankosi) and Mozambique (Gala, Barra, Tofo) focuses on investigating benefit-sharing interventions that secure social justice outcomes. Communities are involved in all aspects of the research process.

The EEU’s work has enriched the core processes of the university. The EEU has published on new approaches to resource governance involving disadvantaged communities and on the mutual benefits of these models to local communities. The EEU was involved in research to support the rights of the San over the Hoodia plant and continues to work with biodiversity custodians and traditional knowledge holders to ensure they receive fair benefits from use of this knowledge. It has produced a wide range of scholarly outputs to disseminate knowledge, from peer-reviewed academic publications, research and technical reports, books and book chapters, affidavits, policy briefs, material in academic curricula, guidelines, conference papers and proceedings, short course training manuals, and community newsletters. The EEU’s teaching initiatives involve postgraduate students in action research, providing context for theoretical approaches, and valuable experience for students and community researchers. The EEU integrates research findings into evidence-based teaching and learning programmes, which include a postgraduate module ‘Managing Complex Human-Ecological Systems’ and input into a third-year course on ‘Sustainability and the Environment’ and to a module for the Master’s in Conservation Biology. The growing number of MPhil, MSc and PhD enrolments in the field points to the strength of the EEU’s programmes. Its engagement with communities renders this work absolutely at the centre of what we mean by social responsiveness. Indeed, the EEU provides this institution with a fine role model of the concept.
**NAMES OF GRADUANDS**

An asterisk * denotes that the degree will be awarded in the absence of the candidate.

**FACULTY OF SCIENCE**

Dean: Professor AP le Roex

**DEGREE OF BACHELOR OF SCIENCE**

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<tr>
<th>Name</th>
<th>Degree and Distinctions</th>
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<td>Jessica Joan Armstrong</td>
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<td>Marie Belle Kathrina Mendoza Ackllo (with distinction in Biochemistry and Human Physiology and the degree with distinction)</td>
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<td>Lynray Jefferson Mpho Barends (with distinction in Computer Science)</td>
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<tr>
<td>Amanda Juliet Kirby (with distinction in Biochemistry and Human Physiology and the degree with distinction)</td>
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<td>Katherine Jean Klaasen</td>
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<td>*Hayley Ann Knight (with distinction in Human Physiology)</td>
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<td>Philippe Manuel Koch</td>
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<td>Matthew John Koekemoer (with distinction in Microbiology)</td>
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Shallen Lusinga
Dane Marshall Mackier
Ledile Makkie Madiba
Tendai M’tubuki Madzivire
Tami Matamela Maiwashe (with distinction in Business Computing and the degree with distinction)

*Love Majoka
Kate Makin
Gerard Malengret
Kholofole Maloma
Lebogang Mametja
Rendani Leciticia Mambonani
Nuraan Martin
Zela Alexandria-Mae Martin (with distinction in Biochemistry, Genetics and Psychology and the degree with distinction)

Halatedzi Kevin Matidza
Maiden Phindile Matshika
Ndombikayise Florabell Mazibuko
Zimele Avumile Mbanjwa
Grant Jospeh James Mc Gowan
Justin Rafael Melnick
Rudelee Bianca Merks
Dorothy Emma Mhlanga

*Isabel Andrea Micklem
Dieter Mielke (with distinction in Biochemistry and Human Physiology and the degree with distinction)
Benjamin Jacob Mmari
Realeboha Mohono
Teboho Jacob Mosili
Nonhanhla Motaung
Cheleka Anne-Marie Mpande
Puleng Edith Mphou
Tawanda Criswell Mtemachani
Zamantshali Nomindeni Mtsi
Nasipi Inoba Siphesihle Mtsi
Chenjerai Innocent Muchapirei (with distinction in Biochemistry)
Rudzani Melba Muedi
Seth Daniel Musker (with distinction in Applied Biology and Ecology & Evolution and the degree with distinction)

Cheyenne Muthukarapan
Munzi Steven Mavuma
Mthobisi Mzobe
Racantha Naidoo
Thabo Ndlovu

*Jacques Adriaan Nel
Bonginkosi Enoch Ngcobo
Isaac Nhlapo
Alexander Murphy Norman-Dysse
Griffin Andrew Nortje
Cellie Bakhetsele Nsibande
Kuthula Nthontsho
Thulani Mvelo Nyathi
Alicia Athieng Okeyo
Amy Joy Oosterbaan

Wade Osborne
Nina Ketshpile Otsweleng
Francisco Edisson Moreira Paiva (with distinction in Chemistry)
Chloe Elle Papademetriou
Julia Barbara Paterson

*Carl Paul
Robyn Pauline Payne (with distinction in Marine Biology and Ocean & Atmosphere Science and the degree with distinction)
Carey Terese Pike (with distinction in Chemistry and Environmental & Geographical Science and the degree with distinction)

Moagabo Natalie Ragoasha
Kira Isabella Rahme
Hashradah Ramburn
Stefanus Petrus Rautenbach
Chelsea Claire Rebelo
Desghi Reddy
Danika Sherron Richards
Ariella Nikia Rink
Yael Simone Rodger
Annabelle Jade Rogers (with distinction in Applied Biology and Ecology and Evolution and the degree with distinction)
Jeremy Themba Rose (with distinction in Biochemistry and Environmental & Geographical Science and the degree with distinction)
Meghan Nicole Rousseau (with distinction in Marine Biology and the degree with distinction)

*Charles Thomas Rumboll
Marwaan Rylands
Ryan Saunders
Marie-Louise Schiller
Daniel Eric Schilpeteroot

*Teboho Sebetilela
Patricia Nonkululeko Seletlo
Michael Shaw
Stephanie Shaw (with distinction in Biochemistry and Human Physiology and the degree with distinction)

Sven Roland Siedentopf
Simone Caroline Singery

*Salmande Bongani Skosana
Daniella Anne Smale
Shareefah Smith
Timothy Francis Spracklen (with distinction in Biochemistry and Genetics and the degree with distinction)

Muhammad Faraz Sulaiman
Barakansanya Godfrey Swai
Patricia Cathryn Swart
Brandon James Talbot
Dineo Jeanette Maria Tau
Welcome Tawana

*Marcel Ta’l Mrkusic Terblanche
Tarryn-May Terry (with distinction in Microbiology)

*Lerato Thakholi
Anna Thalassinos
Cahtlin Patricia Uren
Arend Rozier van Blerk
Justin James van Blerk
Jocelyn Merle van Eeden

*Grant van Helsdingen (with distinction in Computer Games Development and Computer Science and the degree with distinction)
Julia Laura van Velden (with distinction in Applied Biology)

Luke Jeffery Viljoen
Storme Viljoen
Yao Wang
Robyn Waters

*Matthew Hadyn Watkins
James Anthony Watson
Digby Webb
Tariq Raool Webber

*Joshua Weeber
Joseph Douglas Mandla White
Jessie Gloria Whittal
Christopher Ronald Wilkes
Michele Jo Wilson
Romy Jennifer Wood
Lauren Wooler

*Rozanne Deirdre Worsley-Worswick
Amy Grace Wright (with distinction in Applied Biology and Marine Biology)

Xolisile Fortune Yende
Lubabalo Siyavuya Zamxaka
Shaka Mbongiseni Zulu

In Biology, Earth & Environmental Sciences:

*Bruce Diarmuid Lanham Baigrie
Gemma Kendall Pelton Bluff

*Adam Ross Brink
Courtnee Clark
Silvestre Emanuel Da Silva
Tania Diba
Alain Jesse du Plessis
Kimera Nancy Evans
Mari-lise Franken

*Muhammad Zaid Gangraker
Nicole Isebell Garcia
Rui Antonio Henriques
Mogammad Zubair Isaacs
Madimetja Aubrey Kekana
Kholofole Hope Kwakwa
Anthony Martin Lawrence
Hulisani Luvhengo

*Rory Michael Mccreadie
Shongile Prudence Meyiwa
Sambesiwe Khatala Mfenyana

Xolisile Fortune Yende
Lubabalo Siyavuya Zamxaka
Shaka Mbongiseni Zulu

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Mogammad Zubair Isaacs
Madimetja Aubrey Kekana
Kholofole Hope Kwakwa
Anthony Martin Lawrence
Hulisani Luvhengo

*Rory Michael Mccreadie
Shongile Prudence Meyiwa
Sambesiwe Khatala Mfenyana
Alison Danielle Midgley
Ruth Moeti
Johnson Thapelo Montshiwane
Naseera Moosa
Rose Tufilonghenda Tuye-Mewano
Mtoueni
Clare Frances Nichols
Mzwandile Maxwell Ntamo
Thamsanqa Phindani
Pablo Dario Silva De Gouveia Pinto
Kirrin Gail Reid
Jody-Lee Reizenberg
Matthew James Rosenberg
Rene Schieritz
Koketso Providence Senosi
Tulimusho Bonifatius Shilongo
Travis Smithard
Sichumilesanda Siphelele Spelman
Kanyane Nacia Tsoka
Zimkhitha Zungula

In Chemical, Molecular &
Cellular Sciences:
Zaheera Ahmed
*Adam Michael Barnes
Katherine Elizabeth Beard
Tamsin-Lee Bettison
Mandisa Cele
Blessing Chibhara
Tapiwa Beaven Chiwota
Carla-Ann Fernandez
Charles Foya
Jonathon Neil Golembo
Sherazaan Dineo Ismail (with distinction
in Microbiology)
Nishita Jhilmeet
Eleanor Kudzani Khupe
Kamogelo Lebeko
Bryan Mark Leonard
Zanele Lwana
*Mpho Mafata
Sphelele Malaza
Rabelani Maumela
Nomusa Elvira Mbowongwa
Candice Chanelle Mias
Kgotsofallang Mohale
Thembinkosi Mpofo
*Tutenu Rethabile Ngaamatse
Nonduqo Relebile Nelwane
Nomusa Sibeko
*Nobuhle Sibisi
*Gakanego Valerie Ramaotsoa
*Monde Sinxi
Shane Cedrick van Wyk

In Information Technology:
Hatitey Ehiridge Chindove
David Howard Cohen
Nkosikhona Dlamini
Bhavana Harrilal
Warren Jon Kane
*Kundai Karima
Njabulo Comfort Khathi
Zola Julias Madolo
Phuthung Makhupane
*Nakampe Raymond Manyama
*Tilile Tumotong Maubahne
*Dorothe Bahati Mfuti
dele
Sele Mthimkhulu
Sizwe Ndlovu
Vusani Neguyni
Ayami Nsaliwa
Ziyaad Parker
Bruce Mark Salinge
Pieter Christiaan Slabbert
Eric Chin-Hao Su
Hassen Zalagonker

DEGREE OF BACHELOR OF
SCIENCE (HONOURS)

In Atmosphere Science:
*(In the first class) Christopher William
John Brodick
*(In the first class) Willem Stefaan
Conradie
*(In the first class) Myra Naik

In Botany:
*Wesley Drummond Bell
Jessie Berndt
*(In the first class) Alison Bijl
*(In the first class) Anabelle Williamson
Cardoso
*(In the first class) Myfannwyn Gibson
*(In the first class) Rebecca Hazel Karpul
Thomas Colin Morris
Fridah Non Siyanga Tembo
*Caroline Ann Wallington
*(In the first class) Cameron Wills
Kim Christie Zoeller

In Chemistry:
Rachelle Dominique De Charmoy
Chanel Irene Fouche
Avela Kunene
*Fabrizio Paolo L’Abbate
Fezile Mahlala
Mabutho Malothe
Latisa Maqeda
Roxanne Mohunlal
*(In the first class) Nomakhwezi Mvumvu
Thandokazi Ndlakuse
Winnie Ntshimane Nkowa
Mlamleli Allen Ntanso

*Gakanego Valerie Ramaotsoa
*Monde Sinxi
Shane Cedrick van Wyk

In Computer Science:
*(In the first class) Michiel Johan Baird
*Kevin Shaun Brenkel
Dylan Ivan Brown
*(In the first class) Kaitlyn Crawford
*(In the first class) Bryan Evan Davies
*(In the first class) Dominic Christopher
Follett-Smith
Donovan Mervyn Wilfrid Foster
*(In the first class) Jan Hendrik Joubert
Riyaadth Kajee
Marco Peter Lawrence
*(In the first class) Tsu-Shiuan Lin
Kwesiyir Macdonald Lwabona
Kulani Makuhube
Molauqhsa Gardner Maoyi
*(In the first class) Joanne Margaret Auld
Marston
Jarred Martin
Ryan Luke Mazzolini
Taariq Mullins
George Gitau Ng’ethe
Lutando Ngqakaza
Simbarashe Linval Nyatsanga
*(In the first class) Richard Lyle Pieterse
Rotondwa Wayne Ratshidaho
Tatenda Shumba
Sashen Sunseel Singh
Deon Takspie
Donovan Thomson
*(In the first class) Timothy Daniel
Trewartha
*(In the first class) Justin van der Merwe
Hendrik de la Rey van Jaarsveld
Sascha Watermeyer

In Environmental &
Geographical Science:
*(In the first class) Annesley Vivienne
Crisp
*Robyn Adele Dreyer
*(In the first class) Stacey Ann
Hope-Bailie
Awongwe Mitikulu
*(In the first class) Andrea Inga Roxin

In Geochemistry:
Tamzon Talisa Jacobs
Mmapholo Khalo
Sefularo Tebogo Lekgau
Kopano Kanyane Maisela
Builewa Alucia Mdleleni

In Geology:
Bright Vuyani Duze
Leilah Gharabaran
*Howard Head
*Alistair James Jackson  
*Marvel Hope Makhubele  
*Gregory Allan Molzen  
*Andile Lucky Msolo  
(In the first class) Ushah Ranchod  
*Sean Fergus Rennie  
*Megan Jean Runds  
*Sukey Anna Jay Thomas

**In Information Technology:**  
Reitumetse Johnpaul Chaka  
(In the first class) Julian Simbarashe Kanjere  
Sanele Macanda  
Richard Maliwatu

**In Molecular & Cell Biology:**  
*Lee Arild  
*Richard George Atkinson  
Samantha Frances Bayly  
*(In the first class) Steven Bing  
Tunehafo Elisabeth Brock  
Margaretha de Waal  
*Harley Dickenson  
*(In the first class) Anthea Leigh Dickson  
Jonathan Douglas Glass  
*Nkosikhona Rejoyce Hlatshwayo  
Natalie Hoffman  
Liezl le Roux  
Manolo Mathews Maekela  
Jun Mao  
*Tyronne Kyle Mccrindle  
*(In the first class) Robert Anthony Milton  
Adam Natherson  
Jean Felistas Ntuli  
*Tasneem Pearce  
Janie Pieters  
Kudzaishe Caroline Siziba  
Elizabeth Louise Waldron

**In Ocean & Atmosphere Science:**  
*Laura Valerie Braby  
*Jennifer Leigh Butler  
*(In the first class) Kyle Francis Cooper  
Xolisa Diomo  
*(In the first class) Marcel David du Plessis  
*Blessing Kamwi Kamwi  
Pathiswa Kedama  
Mokete Simon Koago  
(In the first class) Philip Peter Massie  
Lebogang Innocentia Melato  
Lerato Elizabeth Mphesha

**In Physical Oceanography:**  
*(In the first class) Alistair Alexander Blair  
Christopher Richard Jacobs

**In Zoology:**  
(In the first class) Jordan-Laine Calder  
(In the first class) Cara Louise Danee  
(In the first class) Olivia Deckers  
(In the first class) Nadia Rachel De Souza  
*Byron Keith Dilkes  
*Nikita Maxine Finger  
*Deborah Cailltin Firth  
(In the first class) Nina Catherine Lester  
(In the first class) Beth Mackay  
(In the first class) Helen Sefadi Muller  
(In the first class) Muhammad Azher Nunkoo  
Jennifer Kim Roberts  
(In the first class) Tanya Scott  
*Jacky Leigh Spiby  
(In the first class) Kim Leigh Stevens  
*Leah Jane Tucker

**DEGREE OF MASTER OF SCIENCE**

In Applied Marine Science Oceanography:  
*Majambo Jarumani Gamoyo  
*Mariam Nguvava

In Applied Marine Science (Zoology):  
Brett Reimers  
*Jakobus Stephanus Tha

In Archaeology:  
Troy Nathaniel Smuts

In Botany:  
Catherine Margot Browne  
Oscar Dlodlo  
*(With distinction) Vera Hoffmann  
Aluwani Athalia Tshiila

In Chemistry:  
Muneebah Adams  
Gregory David Bowden  
Leah Charlie Matsinha

**In Computer Science:**  
*Sen Lee Allen  
Zacharia Paul Walker Crumley  
Michelle Brina Havenga  
Omowunmi Elizabeth Isafiade  
Pheche Machaka  
*Morwan Mohamed Nour  
Ian Alan Saunder  
*Kieran Paul Sharpey-Schafer  
*(With distinction) Kyle Mark Williams

**In Conservation Biology:**  
*Edward John Rice  
*Byron Keith Dilkes  
*Nikita Maxine Finger  
*Deborah Cailltin Firth  
(In the first class) Nina Catherine Lester  
(In the first class) Beth Mackay  
(In the first class) Helen Sefadi Muller  
(In the first class) Muhammad Azher Nunkoo  
Jennifer Kim Roberts  
(In the first class) Tanya Scott  
*Jacky Leigh Spiby  
(In the first class) Kim Leigh Stevens  
*Leah Jane Tucker

**DEGREE OF MASTER OF PHILOSOPHY**

In Archaeology:  
Ndivhuho Eric Mathoho

In Environmental Management:  
*Anna Augusta Hushlak  
*Adina Evelyne Israel  
Jared Robert Davey  
Juli Louise Rumble

In Information Technology:  
*(With distinction) Stephen Colin Marquard
In Botany:
Mmoto Leonard Masubelele
Thesis Title: Understanding the past to conserve the future: long-term environmental and vegetation change in the Karoo Midlands, South Africa over the last 20th century

Mmoto Masubelele was born near Polokwane in Limpopo Province. He received his BSc and BSc(Hons) degrees from the University of Venda, majoring in Botany and Zoology. His MSc degree was obtained from the University of Cape Town.

Mmoto Masubelele’s PhD thesis uses a combination of historical analyses, including those of repeat ground photography, to document the nature, extent and rate of vegetation change in the Karoo Midlands region of South Africa at multiple temporal and spatial scales. This semi-arid region, which incorporates the Grassland and Namakaroo biomes has been the focus for more than 50 years of considerable desertification-related research concerned with the impact of land use and climate-change drivers on the vegetation of the region. Mmoto Masubelele’s thesis reflects one of the most comprehensive analyses of long-term change for any semi-arid region in the world and provides an important baseline against which both historical and future vegetation changes can be assessed. The tools he has developed for assessing long-term vegetation change will be used by the major conservation agencies to manage the biodiversity within Southern Africa’s protected area network.

Supervisor: Professor T Hoffman (Botany)
Co-supervisor: Professor W Bond (Botany)

In Chemistry:
*Mogamat Riedaa Gamieldien
Thesis Title: Parameterization of the Gay-Berne coarse-grained potential from atomistically detailed anisotropic free energy volumes

Riedaa Gamieldien grew up in Cape Town and completed his BSc(Hons) and MSc in the Department of Chemistry at UCT. He has been a doctoral student in the Scientific Computing Research Unit (SCRU) since 2009. During this time he has been a major developer of the SCRU coarse grain dynamics software project, in addition to being a senior systems administrator of one of the largest high performance computer clusters on the UCT campus.

Riedaa Gamieldien’s PhD is focused in the general area of multiscale modelling. His thesis demonstrates the feasibility of a key hypothesis that the thermodynamics details of atoms and molecules fundamentally informs the macroscopically observed properties for these chemical systems. He chooses weak aromatic hydrophobic molecules, often found in proteins, to prove the principle that the multidimensional free energy of association (observed at the small molecular length scale) is central to describing performance of liquids. This is a key finding that lays down the foundation for the development of high speed computational systems capable of predicting the structure of proteins.

Supervisor: Professor KJ Naidoo (Chemistry)

Peter Malatji
Thesis Title: Studies towards degradable polymers: new zinc(II) and palladium(II) complexes as catalysts for lactide polymerization and carbon monoxide/styrene copolymerization

Peter Malatji grew up in Seabe village, Mpumalanga, and obtained his BSc and BSc(Hons) degrees in Chemistry at the University of Limpopo. He then came obtained his MSc in Chemistry at UCT in 2008. This year he was presented with the inaugural SA Youth Award (Academic Excellence category) by the National Youth Development Agency.

Peter Malatji’s PhD research is motivated by current interest in the development of degradable polymers for drug delivery and for packaging purposes. Biodegradable polylactide has been found to be useful as a vehicle for delivering drugs to targeted cells. Carbon monoxide/styrene and similar copolymers are classes of photodegradable polymers which are used for environmentally friendly packaging applications. Peter Malatji’s thesis firstly reports on the synthesis and characterization of new homoleptic zinc(II) catalysts and the application of these to the production of polylactide. The isolated polymers are functionalized with a drug-like molecule on the polymer backbone by a new method, anticipating applications for drug delivery purposes. In a second study, new palladium(II) catalysts are synthesized and characterized and used for CO/styrene copolymerization. The types of catalyst developed here can be supported on carbon nanotubes, resulting in reusable palladium catalyst systems. Lastly, the isolated CO/styrene copolymer is found to react with lactide using a C-C coupling method to form a poly(lactide-co-CO/styrene) block copolymer. This represents a new class of degradable polymer for heavy-duty packaging materials that are harmless to the environment.

Supervisor: A/Professor AT Hutton (Chemistry)
Co-supervisor: Professor NJ Coville (Chemistry, University of the Witwatersrand)

*Roslyn Thelingwani
Thesis Title: Integration of in silico and in vitro ADMET properties in lead identification and optimization of compounds for the treatment of parasitic diseases

Roslyn Thelingwani has a BSc(Hons) degree in Biochemistry and an MSc in Biotechnology from the University of Zimbabwe. She has been studying at UCT, in the Department of Chemistry since 2008, also conducting some studies at the African Institute of Biomedical Science and Technology. Roslyn Thelingwani’s PhD thesis involves the setting up of a panel of in silico and in vitro methods for the study of drug absorption, distribution, metabolism and excretion (ADME) and applying them in the characterisation of new chemical entities. She successfully sets up methods for the determination of physicochemical
properties such as solubility, lipophilicity and protein binding. She sets up metabolism assays such as metabolic stability, reaction phenotyping, metabolite identification, and enzyme inhibition. To our knowledge this is the first time such an ADMET platform for drug discovery and development has been set up in Africa. She has applied this ADMET toolkit in the evaluation of two series of antimalarial drug discovery project candidates, a herbal extract and in the optimisation, of a drug already on the market. Her work demonstrates the applicability of the platform in performing evaluations important in drug discovery, development and optimal use of medicines.

**Supervisor:** Professor K Chibale (Chemistry)
**Co-supervisors:** Honorary Professor C Masimirembwa (Clinical Pharmacology) Professor P Smith (Clinical Pharmacology)

Nicholas Daniel Watermeyer
**Thesis Title:** Design and synthesis of potential inhibitors of enzymes involved in the biosynthesis and utilisation of mycothiol

Nicholas Watermeyer completed his BSc, BSc(Hons) and MSc degrees in Chemistry at UCT.

Nicholas Watermeyer’s PhD research focuses on the synthesis of a new class of molecules designed to inhibit key enzymes involved in the biosynthesis of mycothiol, an antioxidant which plays a crucial role in the survival of Mycobacterium tuberculosis. The target molecules combine the redox-active naphtho- and carbazole-quinoines, having documented anti-mycobacterial activity, with a mycothiol-like aminoglucoside template in the hope that delivery to the active-site of target enzymes such as mycothione reductase (Mtr) might be facilitated. Several new carbazole-quinone conjugates are prepared, using an approach based on initial connection of a “linker unit” at various sites of the quinone, followed by coupling to the sugar unit via this linker. The modest anti-mycobacterial activity observed for these compounds confirms preliminary hypotheses about structure-activity relationships, and final conclusions about the combined role of the two components will follow from on-going assays for enzyme-inhibitory activity. In the course of the research, a careful investigation of a persistent problem in one key step of the synthetic process led to the discovery of new routes to benzog[ghi]indoles and benzo[h]quinolones, two related classes of heterocyclic structures with known biological activity.

**Supervisor:** A/Professor DW Gammon (Chemistry)
**Co-supervisor:** A/Professor D Steenkamp (Chemical Pathology)

Feng Zheng
**Thesis Title:** Olefin oligomerization reactions: theoretical studies using cyclometallated palladium(II) catalysts and experimental studies on platinum(II) analogues

Feng Zheng grew up in Shanghai, China. She obtained a Diploma in Analytical Chemistry in 2001 from the Shanghai Institute of Technology and a BTech in Chemistry (cum laude) from the Cape Peninsula University of Technology in 2006. Since then she has been studying at UCT and was awarded her MSc in Chemistry (with distinction) in 2008.

Feng Zheng’s PhD research is motivated by the growing interest in the use of palladium-based catalysts for ethylene oligomerization; such oligomers have applications as co-monomers in the production of linear low-density polyethylene and as starting materials for the preparation of detergents and synthetic lubricants. Her thesis investigates various factors in the ethylene oligomerization reactions catalysed by cyclometallated palladium(II) complexes using both theoretical and experimental methods. Theoretically, she applies Density Functional Theory (DFT) calculations to the possible interactions between the palladium pre-catalyst and three alkylaluminium co-catalyst models. Experimentally, she synthesizes cyclometallated platinum(II) complexes as models for the palladium pre-catalysts, and investigates the influence of the chelating ligands in these complexes. The results obtained from the DFT calculations show that the oligomerization of ethylene by cyclometallated palladium complexes has low activity and produces mainly ethylene dimers, thus rationalizing the observation of actual catalytic reactions. Feng Zheng identifies potential shortcomings existing in the currently studied catalyst systems and provides a basis for the design of new palladium catalysts for oligomerization in the future.

**Supervisors:** Professor JR Moss (Chemistry) (deceased)
A/Professor AT Hutton (Chemistry)
**Co-supervisors:** Professor SF Mapolie (Chemistry and Polymer Science, Stellenbosch University) Dr CGCE van Sittert (School of Physical and Chemical Sciences, North-West University)

Euphrath Masinde holds a bachelors and a master’s degree in computer science from the University of Nairobi and the University of Brussels respectively. While working towards her PhD in Computer Science at UCT, she published and presented over 10 papers. Her research and teaching experience in the field of computer science spans over 15 years. Euphrath Masinde’s PhD research was motivated by the fact that utilisation of scientific drought forecasts among the small scale farmers in Africa was still very poor and that the farmers still preferred to consult their indigenous knowledge (IK). Further, there was evidence that IK was under serious threat from events such as climate change and ‘modernisation’. Driven by the hypothesis that incorporating IK into the scientific drought forecasts improves the latter’s relevance (both locally and culturally) and acceptability among the small-scale farmers, the thesis looks at how computer science tools could accelerate this integration. Euphrath Masinde devises a novel bridge dubbed ITIKI: bridge between traditional and modern science on drought prediction

**In Computer Science:**
Euphrath Muthoni Ireri Masinde
**Thesis Title:** ITIKI: bridge between African indigenous knowledge and modern science on drought prediction

Euphrath Masinde's PhD research was motivated by the fact that utilisation of scientific drought forecasts among the small-scale farmers in Africa was still very poor and that the farmers still preferred to consult their indigenous knowledge (IK). Further, there was evidence that IK was under serious threat from events such as climate change and 'modernisation'. Driven by the hypothesis that incorporating IK into the scientific drought forecasts improves the latter's relevance (both locally and culturally) and acceptability among the small-scale farmers, the thesis looks at how computer science tools could accelerate this integration. Euphrath Masinde devises a novel bridge dubbed ITIKI: Information Technology and Indigenous Knowledge with Intelligence) that is realised in form of a drought early warning system. To tackle the diverse characteristics of this bridge, three ICTs are employed: (1) mobile phones to harness the indigenous knowledge and disseminate drought forecasts; (2) sensor-based weather stations to complement the sparse network of weather stations; and (3) artificial intelligence for monitoring and predicting droughts. The prototype
In Geology:
Nawahl Razak
Thesis Title: An investigation into the effectiveness of a controlled source electromagnetic survey in locating petroleum resources offshore Equatorial Guinea

Nawahl Razak obtained her BSc, BSc(Hons) and MSc degrees in Physics from UCT.

Nawahl Razak’s PhD thesis analyses Controlled Source Electromagnetic (CSEM) surveys acquired in an area offshore Equatorial Guinea. Using 3-dimensional seismic reflection data, she identifies several features which could represent hydrocarbon reservoirs. She calculates the CSEM responses of many geological models which could be representative of what is to be expected in the area. She then compares the real CSEM data with the responses of the various possible geological models. Using the CSEM data she demonstrates that the area is likely to contain hydrocarbons, and identifies where they might be located. She thus brings together the seismic, geological and CSEM data in a joint interpretation, leading to her conclusions which identify likely hydrocarbon resources, at the same time validating CSEM as a petroleum exploration tool.

Supervisor: Mr GC Smith
(Geological Sciences)

In Molecular and Cell Biology:
Taryn Grace Boom
Thesis Title: A biological study of the cellular response to heat stress in the South African alga Gracilaria gracilis

Taryn Boom has a BSc degree with majors in Microbiology and Biotechnology, and a BSc(Hons) in Molecular and Cell Biology from UCT.

Taryn Boom’s PhD thesis investigates the effect of heat stress on the commercially important red seaweed, Gracilaria gracilis, which occurs naturally in Langebaan Lagoon and Saldanha Bay, South Africa. The yield of beach cast seaweed has diminished substantially due to oligotrophic conditions that occur as a consequence of elevated water temperatures during the summer. In order to characterise the molecular pathways involved in maintaining thermal tolerance and the onset of cell death, a comparative proteomic approach is used to identify proteins expressed in heat-stressed G. gracilis. Of the 555 proteins reproducibly detected by two-dimensional polyacrylamide gel electrophoresis, 76 proteins are found to be up-regulated and 38 proteins were down-regulated in response to heat stress. Seven of the most differentially expressed proteins are identified by tandem mass spectrometry, their biological functions determined and, in conjunction with the physiological response of the alga to heat stress, used to construct a model of the G. gracilis heat stress response. Transcriptional up-regulation of the gene for one of the identified proteins, a 70 kDa endoplasmic reticular heat shock protein, is verified using real-time PCR, indicating that the ER Hsp70 could potentially be used as a molecular indicator of heat stress in farmed G. gracilis.

Supervisor: A/Professor V Coyne
(Molecular and Cell Biology)

In Environmental and Geographical Science:
Nana Ama Kum Browne
Thesis Title: Model evaluation for seasonal forecasting over southern Africa

Nana Browne’s PhD thesis focuses on improving seasonal forecasts over Southern Africa. The thesis uses a detailed analysis of observation and model simulations to explore the capability of two general circulation models (called CAM3 and HadAM3) in simulating global and regional atmospheric processes that modulate weather and climate in southern Africa. The study improves the understanding of the complex relationship between global Sea Surface Temperature anomalies and seasonal variability in the southern African climate, and provides significant insights on the shortcomings of the models in simulating this relationship. These findings provide a valuable metric for determining the skill of climate models for seasonal forecasting. The thesis finds that the while the CAM3 model gives a better seasonal forecast over southern Africa during El Niño years than during La Niña years, the reverse is the case for HadAM3. In helping understand the underlying reasons for this, the study informs the further development of these models and ultimately provides useful information for climate modelers, forecasters, and researchers.

Supervisor: Professor B Hewitson
(Environmnental and Geographical Science)

Co-supervisor: Dr B J Abiodun
(Environmnental and Geographical Science)
groups, as well as the total numbers of bacteria, were reduced further in the HIV positive patients, suggesting that HIV infection has a prolonged negative impact on the gut bacteria and consequently on gut health. Normalising the gut bacterial population in HIV positive patients by probiotic supplementation with bacteria belonging to these deficient groups may assist patient recovery by providing supportive care during antiretroviral treatment.

Supervisor: A/Professor VR Abratt (Molecular and Cell Biology)
Co-supervisor: A/Professor SJ Reid (Molecular and Cell Biology)

Renaud Gaujoux
Thesis Title: Non-negative matrix factorization: tools and application to gene expression deconvolution

Renaud Gaujoux obtained a Master’s degree in Statistics and Economics from École Nationale de la Statistique et de l’Administration Économique in Paris and a second Master’s degree in Applied Mathematics from the State University of Campinas, Sao Paulo. Renaud Gaujoux’s PhD thesis describes the development and application of computational tools for non-negative matrix factorization (NMF) for use with gene expression data. An array of existing NMF strategies is implemented in an R package, together with functionality to facilitate the development, implementation and testing of novel NMF strategies. His thesis goes on to investigate the application of NMF to the gene expression deconvolution problem. Gene expression datasets generated from tissue samples can be thought of as a sum of the expression levels in the constituent cell types weighted by the cell type proportions in the sample, and the deconvolution problem consists in identifying the cell type proportions and gene expression levels or changes in gene expression between sample groups for each cell type. Renaud Gaujoux’s thesis presents a novel semi-supervised approach to gene convolution using NMF combined with a set of known marker genes for the cell types in a sample. A general set of tools, again using R, developed to facilitate the implementation of deconvolution methods. Incorporating several datasets from the deconvolution literature, these tools enable novel deconvolution strategies to be benchmarked easily against existing methods.

Supervisor: Professor C Seoighe (Medical Biochemistry and National University of Ireland, Galway)
Co-supervisor: Professor N Mulder (Infectious Diseases and Molecular Medicine)

*Aderito Luis Monjane
Thesis Title: Analysis of recombination and evolution of maize streak virus

Adrieto Monjane obtained his BSc degree from the University of the Western Cape and BSc(Hons) and MSc degrees from UCT. He has been studying towards his PhD degree in the Molecular and Cell Biology Department since 2007. During this time he has made vital contributions to an unprecedented number of research publications (15 in total) and has revolutionised the study of the major African crop pathogen, maize streak virus.

Aderito Monjane’s PhD thesis examines, within a cutting edge statistical framework, the movement and evolutionary dynamics of maize streak virus. Analysing the biggest temporally structured sample of full genome sequences sampled from a single plant virus species, he determines that the first maize streak viruses likely originated in the mid 1850s in the region of Southern Africa at the intersection between Zimbabwe, South Africa and Mozambique. Using the same statistical tools used to study the genesis of maize streak virus, he shows that two discrete regions in Africa - one at the same site where maize streak virus originated and one in East Africa at the intersection between Kenya and Uganda – have, over the last 40 years, been the origin of every major epidemic strain of maize streak virus. He then goes on to confirm in the laboratory that the extremely rapid evolution of these viruses is driven by a combination of extremely high genetic recombination and mutation rates.

Supervisor: A/Professor VR Abratt (Molecular and Cell Biology)

Amelia Francine Reddy
Thesis Title: Characterisation of the effect of stress on nitrogen metabolism in the commercially important agarophyte, Gracilaria gracilis

Amelia Reddy has a BSc degree with majors in Biochemistry and Biotechnology, and a BSc(Hons) in Molecular and Cell Biology from UCT. Amelia Reddy’s PhD thesis investigates nitrogen metabolism and the mechanisms regulating nitrogen metabolism in Gracilaria gracilis, the commercially
Mariette Smart
Thesis Title: Flowering in Protea: a molecular and physiological study

Mariette Smart’s started working on Protea as an undergraduate research assistant at the University of Stellenbosch, where she also completed her MSc. She joined the Department of Molecular and Cell Biology at UCT in 2005 to continue research on these interesting but molecularly-neglected plants. Mariette Smart’s PhD thesis explores the physiological and molecular bases of flowering time in Protea. As many Proteaceae have large flowers, she investigates whether the metabolic cost of inflorescence development could be a determinant of the flowering time of Proteas. Through a physiological approach, she demonstrates that floral development in the year-round flowering cultivars are carbon limited, but that flowering time is not determined by carbon availability. She then takes a molecular approach to determine whether flowering time in ‘Carnival’, a hybrid of P. compacta and P. neriifolia, is day-length (photoperiod) dependent. She demonstrates that the cultivar and parental species have functional circadian clocks which allow day-length measurement. She isolates a gene from ‘Carnival’, ProFT, which had increased expression in the leaves during the early summer when floral organs are beginning to develop. Finally, four copies of ProLFY are identified in ‘Carnival’ and through heterologous expression studies in Arabidopsis thaliana, these are demonstrated to have roles in both floral and vegetative development. This is the first progress towards demystifying the induction of flowering in Proteaceae. Apart from its purely scientific merits, this is also a step towards implementing better floricultural management of Proteaceae for flower production.

Supervisor: A/Professor V Coyne
(Molecular and Cell Biology)

In Physical Oceanography:
*Neil Christopher Geoffrey Hart
Thesis Title: Synoptic-scale rainfall patterns over southern Africa: scale interactions with large-scale modes of variability

Neil Hart has a BSc(Hons) degree in Atmospheric Science from UCT. After initially registering for an MSc degree in Ocean & Atmosphere Science he upgraded to a PhD. Neil Hart’s PhD thesis analyses the most important summer rainfall system, the tropical temperate trough (TTT) and examines the important dynamics operating in summer on weather to inter-annual timescales. He devises a novel cloud band detection scheme (metbot) to identify 821 TTT events during 1979-2011 for analysis. Depending on the location in southern Africa, 30-60% of the total rainfall results from TTT events, with November experiencing the strongest contribution. Individual extreme TTT events can modify seasonal totals by over 20%. The relationships of the El Niño Southern Oscillation and the Madden-Julian Oscillation with cloud band activity over southern Africa are examined. Most El Niño years have fewer TTT events but near-average rainfall totals. During La Niña, the number of events remains near-average but more persistent and intense rainfall occurs. Idealised experiments with an atmospheric general circulation model show that the response to central Pacific warm events is stronger than to eastern Pacific warm events.

Supervisor: Dr C O’Ryan
(Molecular and Cell Biology)
Co-supervisor: Dr JM Bishop
(Molecular and Cell Biology)
Fialho Nehama has a BSc(Hons) in Oceanography from Eduardo Mondlane University and an MSc in Applied Physical Oceanography from the University of Wales, Bangor. He has been employed as a lecturer at Eduardo Mondlane University since 2005. Fialho Nehama’s PhD thesis addresses the dynamics of the Zambezi River plume which enters the Mozambique Channel near the city of Quelimane. Using the Regional Ocean Modeling System (ROMS), the research initially investigates the characteristics of a single plume entering a simple straight channel with no tidal or wind forcing or ambient ocean currents present. This plume forms a bulge that grows continually as it re-circulates anti-cyclonically in front of the mouth, and a coastal current that flows equatorward. When realistic coastal geometry and channel bathymetry are introduced, the multi-mouth Zambezi River generates a surface-advected plume with limited upstream penetration. The introduction of impulsive wind forcing then leads to a change in plume shape into either a coastal equatorward flowing current or a large bulge that spreads seaward and poleward, depending on whether the wind blows equatorward or poleward. The effect of including asymmetric sea-breezes and tides into the model is to deepen the plume so that it becomes bottom-advected. The last part of the thesis then investigates the influence of ambient currents on the plume behaviour.

Supervisor: Professor CJC Reason
(Oceanography)
Gannet. She also uses stable isotopes in feathers to show that adult White-chinned Petrels only commence moulting after they arrive in their wintering grounds. Combining this result with data from adult birds sampled on their breeding islands throughout their range around the Southern Ocean, she is able to show that adults breeding in different ocean basins winter in different continental waters, which can be used to infer the origin of birds killed by different fisheries.

**Supervisor:** A/Professor PG Ryan (Zoology)
**Co-supervisor:** Dr R Wanless (Birdlife South Africa)

Justine Ewart-Smith
**Thesis Title:** The relationship between periphyton, flow and nutrients in foothill rivers of the south-western Cape, South Africa

Justine Ewart-Smith started her postgraduate career in marine biology, completing an MSc in 1998 at UCT. She moved to Freshwater Ecology when she started consulting in the private sector in 1998. During this time, she identified gaps in our understanding of the effects of dams on downstream stretches of rivers and initiated a research project to study benthic algae, the primary producer of these ecosystems.

Justine Ewart-Smith’s PhD thesis examines spatial and temporal patterns in periphyton – the community of microscopic algae that coats the rocks and sediments on the bottoms of rivers – and the factors responsible for those patterns in south-western Cape Rivers. Using a number of different approaches and techniques, she found that flow frequency was the single most important driver of periphyton communities under natural conditions, but that the role of flow frequency decreases with increasing nutrient enrichment. In a field experiment she also assessed the importance of invertebrate grazers in controlling periphyton communities. The implications of these findings for river management are discussed and a conceptual model of the proposed changes in periphyton community structure associated with altered flow and nutrient conditions is proposed. This thesis constitutes the first detailed assessment of periphyton community structure in South African Rivers.

**Supervisor:** A/Professor J Day (Zoology)
**Co-supervisor:** Dr JM King (Zoology)

Douglas Michael Harebottle
**Thesis Title:** Assessing the conservation value of wetlands and waterbirds with a focus on the winter rainfall region of South Africa

Douglas Harebottle has a BSc(Hons) and an MSc in Zoology from the University of KwaZulu-Natal, Pietermaritzburg. In 1999 he was appointed to a post in UCT’s Animal Demography Unit to coordinate the national waterbird monitoring project. He was also responsible for setting up an African waterbird ringing initiative, and undertook training courses for waterbird ringers in Kenya, Ghana and Zambia. Currently he manages the Second Southern African Bird Atlas Project (SABAP2).

Doug Harebottle’s PhD thesis examines the conservation significance of selected wetlands for waterbirds in the winter-rainfall region of South Africa. It is based on long-term abundance, seasonality and trend data, and aimed to determine whether census data could explain or infer annual changes at a regional scale. He developed a Waterbird Conservation Value (WCV) score to assess the conservation importance for each site. Using correspondence analysis techniques, he determines associations and relationships between wetlands and waterbird species in the region. He finds strong waterbird-wetland associations between saline wetlands (estuaries and estuarine bays) and freshwater wetlands (lakes and waste water treatment works). Palearctic migrants are strongly associated with coastal sites while residents show strong links with freshwater sites and/or brackish wetlands. Most wetlands display strong seasonality, highlighting the importance of species using different sites at different times of the year. Overall, he finds no strong evidence to support linkages between sites based on annual census data and that holistic approaches, including increased ringing and banding efforts, will be needed to better understand how waterbirds use the network of wetlands in the region.

**Supervisor:** Emeritus Professor L Underhill (Zoology)
**Co-supervisor:** Dr T Williams (Cape Nature)

Sally Hofmeyr’s undergraduate degree focused on Wildlife Science. She went on to complete an MSc in Zoology at the University of Pretoria. This had a focus on African mammals, with a research project on giraffes and Acacia nigrescens, which was conducted in the Kruger National Park.

Sally Hofmeyr’s PhD thesis uses data collected by hundreds of citizen scientists over a period of 24 years to examine the status and ecology of six large terrestrial bird species. This is with a view to understanding the effects of ongoing anthropogenic environmental change on these species, and to improving our understanding of their conservation needs. The research utilises data from two citizen science projects: the Coordinated Avifaunal Roadcounts (CAR) project, and the first and second Southern African Bird Atlas Projects (SABAP1 and SABAP2). The thesis begins with an investigation into the reliability of data from the CAR project, using counts conducted on consecutive days. Some species are more reliably surveyed by this methodology than others, depending on behavioural characteristics. Subsequent chapters interrogate the data on each of the six focal species. The thesis includes an assessment of coverage of key regions by CAR and SABAP2, and the conservation implications of the study. Ultimately the research presents new ways of combining data from two long-running citizen science projects to provide much needed information about the status and conservation needs of birds that are otherwise relatively poorly studied.

**Supervisor:** Emeritus Professor L Underhill (Zoology)
**Co-supervisor:** Dr P Barnard (South African National Biodiversity Institute, SANBI)
Grant Joseph obtained his MBChB from UCT in 1995. After working as a doctor for over a decade, his long-standing interest in nature led him back to UCT to complete his MSc in Conservation Biology in 2008. Grant Joseph’s PhD thesis examines the role of large termite mounds in the Miombo woodlands of Chizarira National Park. He investigates how termite mounds and their associated plants grow and develops how the plants and animals that termite mounds harbor differ from those in the surrounding woodland and how termite mounds respond to the perturbations of large herbivores and fire. Chizarira has been under stress from high densities of elephant for many years and in large areas of the park, few intact canopy trees remain. Grant Joseph’s research demonstrates that large termitaaria are important sites for many species and functional groups, including both plants and animals, that would not be present at Chizarira in the absence of termitaaria. Through their mediation of the dominant disturbance regimes of fire and herbivory, termitaaria contribute directly to the diversity of both woody plant species and woody plant functional diversity within the Miombo ecosystem. He also finds strong evidence that termite mounds help to keep cavity-nesting birds (and their associated ecological functions, particularly seed dispersal and cavity creation) in the ecosystem, by providing refugia for tall trees and associated deadwood. Termitaaria thus emerge from the thesis as important contributors to overall system resilience.

Supervisor: Professor GS Cumming (Percy FitzPatrick Institute)
Co-supervisor: Honorary Professor DHM Cumming (Percy FitzPatrick Institute)

Louise Lange completed her BSc at Rhodes University and continued with an MSc at the same university, undertaking research in the Southern Ocean. She has been studying towards her PhD in the Zoology Department and the Marine Biology Research Centre at UCT since 2007, conducting research on the bottom-dwelling marine fauna found in South African waters.

Louise Lange’s PhD thesis examines the distribution patterns and biodiversity of benthic invertebrate communities on the sea floor around South Africa at depths of 30-700 m. Using quantitative benthic invertebrate data collected on three extensive sampling cruises, she finds that the sea floor can be divided into various regions, or biomes, each dominated by a particular group or groups of species. Depth is the major factor determining the animal distribution patterns, with oxygen being the limiting environmental parameter. Six major biomes are identified, four on the West coast and two on the South coast. This information is used to recommend where the most viable offshore Marine Protected Areas should be placed in order to best conserve as many species as possible.

Supervisor: Professor CL Griffiths (Zoology)

Jean Mercy Waruguru Mwicigi has a BSc(Hons) in Zoology from Shivaji University and an MSc specialising in Conservation Biology from UCT. Concurrently with her PhD, Jean has been working as a Marine Scientist in government since 2005. She is the Chairperson, Squid Scientific Working Group and Convener, Climate Change Task Team. Loligo reynaudi is the most abundant squid and sustains the fourth largest local fishery. Squid catches vary considerably and are strongly affected by environmental conditions, primarily turbidity, making the fishery difficult to manage. Jean Githaiga-Mwicigi’s PhD thesis seeks to advance existing knowledge on turbidity, describe the occurrence and origins of nepheloid layers, the driving forces that regulate its production and maintenance. A first account of a thermo-haline gradient of bottom water is given, and concentrations of particulate matter are quantified. Particle sedimentation is further quantified using sediment traps — a first for the region. Novel use of High Pressure Liquid Chromatography (HPLC) provided an opportunity to characterize the structure of phytoplankton — constituents of nepheloid layers. Generalized Additive Models (GAMs) showed Loligo reynaudi biomass estimates are highest in depths between 60 to 200m, off the western/central Agulhas Bank, between 20° - 23°E, in waters with low bottom turbidity.

Supervisor: A/Professor J Day (Zoology)

Sean Murray Marr obtained his MSc(Eng) in Chemical Engineering from UCT in 2003. While working in the metallurgical industry he became interested in environmental issues and - more relevant to the subject of his PhD research - in fly fishing. He soon recognised the perilous plight of many of the south-western Cape’s small freshwater fishes, and began to prepare himself for a career in fish conservation.

Sean Marr’s PhD thesis deals with the conservation of our native fishes, which are among the most threatened taxa in the world. He estimates that less than 10% of river habitat in the Cape Floristic Region is free of alien fishes, which are the greatest threat to the continued existence of our indigenous fishes. He has identified characteristics of different species of fish that make them more or less likely to be successful invaders (and therefore more or less of a threat to native fishes). Sean Marr has also shown that recreational anglers consider the conservation of native fishes to be important but not at the expense of their preferred angling targets — which are the same alien fishes (like bass and trout) that threaten the very existence of our native fishes.

Supervisor: A/Professor M Lucas (Zoology)

*Grant Stuart Joseph
Thesis Title: Understanding pattern-process relationships in a heterogeneous landscape: effects of large termitaaria on diversity and disturbance regimes in Miombo woodlands of northern Zimbabwe

*Louise Lange
Thesis Title: Use of demersal bycatch data to determine the distribution of soft-bottom assemblages off the West and South Coasts of South Africa

*Jean Mercy Waruguru Mwicigi
Thesis Title: The distribution, formation, origins and constituents of nepheloid layers on the Agulhas bank, South Africa, and their implications for Chokka (Loligo Reynaudi) Squid

*Sean Murray Marr
Thesis Title: Conservation of the native freshwater fishes of the Cape floristic region (South Africa): management of non-native species

*Jean Githaiga-Mwicigi
Mududivi Ndlovu
Thesis Title: Environmental influences on moult and movement strategies in southern African waterfowl

Mududivi Ndlovu has a BSc from the National University of Science and Technology in Zimbabwe. He has been studying at the Percy FitzPatrick Institute of African Ornithology since 2007. During this time he has undertaken over 1,000 bird counts, ringed over 800 birds, co-authored six peer-reviewed journal articles, and conducted his PhD research. Mududivi Ndlovu’s PhD thesis explores the life-history strategies that southern African waterfowl exhibit during warm periods when resources are plentiful, southern hemisphere waterfowl delay moult until the dry season. Analysis of satellite telemetry data of Egyptian Geese provides further evidence for life history strategies in which moult plays a central role. In general, phenotypic flexibility during moult, moulted in the dry season, and strong moult-site fidelity to permanent pans appear to be important adaptations that enhance the survival of waterfowl in semi-arid environments. Furthermore, many northern hemisphere biological paradigms do not appear to be directly applicable to southern African waterfowl species.

Supervisor: Professor GS Cumming (Zoology)
Co-supervisor: Professor PAR Hockey (Zoology)

Hassan Aburaida Babiker Salata
Thesis Title: Environmental factors influencing the distribution of bats (Chiroptera) in South Africa

Hassan Salata has a BSc from the University of Juba, Sudan and an MSc from UCT. He was enrolled in the Conservation Biology programme of the Percy FitzPatrick Institute in 2007 and then joined the Zoology Department in 2008.

Hassan Salata’s PhD thesis examines the influence of environmental factors on the distribution of bats in South Africa. He applies Geographic Information Systems (GIS) and Maximum Entropy (MaxEnt) modelling to bat distributional data. He also generates predictive occurrence maps for different bat species based on the environmental factors influencing their distribution. His work suggests that taxonomic affiliations have no bearing on which factors influences the distribution of bats. The distributions of even closely related species are influenced by disparate environmental factors. Geology is the limiting factor for 15 of the 37 bat species investigated, largely as a result of bats using caves as roosts. Temperature and precipitation are the next most important variables, influencing the distribution of 12 and nine bat species, respectively. Of lesser importance was land use/land cover and biome, which influenced the distribution of six and one bat species, respectively.

Supervisor: A/Professor DS Jacobs (Zoology)
Co-supervisor: Professor A Jarre (Zoology)

Charmaine Janet Uys
Thesis Title: The Impact of pine plantations and alien invertebrates on native forest and fynbos invertebrate communities in Table Mountain National Park

Charmaine Uys completed her BSc and BSc(Hons) degrees in Zoology at the University of Natal, Pietermaritzburg, graduating cum laude in 2003. Her MSc in Zoology at UKZN in 2006 addressed invertebrate diversity in Drakensberg forests. Charmaine Uys’s PhD thesis assesses the impact of planting and felling pine on litter invertebrate communities in Table Mountain National Park, by comparing invertebrate diversity and faunal exchange between exotic pine plantations and native Afrotemperate forest and fynbos. In total 728 species (including 19 alien, nine Cape Peninsula endemics, two new genera and 22 new species) were collected from 32 sites. This is one of the first attempts to inventory and quantify the impacts of invasive alien invertebrates on Table Mountain. Ordinations, the functional group approach, and species co-occurrence patterns provide evidence for the displacement, impoverishment and community disassembly of native ants under Argentine ant invasion. Using a reiterative process, ants are selected as indicators of restoration progress in fynbos following clear-felling of pine plantations. This study frames invasion ecology theory in a conservation context, and its findings have application to other Mediterranean-type ecosystems impacted by exotic pine.

Supervisor: Professor M Picker (Zoology)
Co-supervisor: Professor C Griffiths (Zoology)

Margit Renate Wilhelm
Thesis Title: Growth and otolith band formation of Namibian hake Merluccius capensis

Margit Wilhelm was born in Otjiwarongo, Namibia. She holds BSc(Hons) and MSc degrees in Zoology from UCT. She worked for five years at the National Marine Information and Research Centre in Swakopmund, Namibia, before returning to UCT to undertake her PhD research. Margit Wilhelm’s PhD thesis examines the consistency of formation of the so-called annual bands on the otoliths (ear bones) of one of the two commercially important hake species off Namibia, the shallow-water hake Merluccius capensis. She finds the bands to be formed bi-annually, and consequently describes a new age determination method for shallow-water hake. She calculates their spawning times and growth rates and finds they grow twice as fast as previously believed. Using data from ship-based research surveys, she examines the inshore-offshore and alongshore migrations of the shallow-water hake and relates these to the formation of the bi-annual bands on their otoliths. She describes the prevailing sea temperatures and oxygen concentrations during her study period from 1996 to 2009, and relates these to the formation of otolith bands, finding no consistent environmental link. She finally investigates the consequences of the fast growth rates for the current management plan of the hake fishery.

Supervisor: A/Professor A Jarre (Zoology)
Co-supervisor: A/Professor C L Moloney (Zoology)
MISSION STATEMENT

UCT aspires to become a premier academic meeting point between South Africa, the rest of Africa and the world. Taking advantage of expanding global networks and our distinct vantage point in Africa, we are committed, through innovative research and scholarship, to grapple with the key issues of our natural and social worlds. We aim to produce graduates whose qualifications are internationally recognised and locally applicable, underpinned by values of engaged citizenship and social justice. UCT will promote diversity and transformation within our institution and beyond, including growing the next generation of academics.

Foundation statement underpinning the mission statement

Our research-led identity is shaped by a commitment to:
• academic freedom as the prerequisite to fostering intellectual debate and free injury;
• ensuring that research informs all our activities including teaching, learning and service to the community;
• advancing and disseminating knowledge that addresses the key challenges facing society – South African, continental and global;
• protecting “curiosity driven” research;
• nurturing and valuing creativity in the sciences and arts including the performing and creative arts;
• stimulating international linkages of researchers and research groupings.

We strive to provide a superior quality educational experience for undergraduate and postgraduate students through:
• providing an intellectually and socially stimulating environment;
• inspired and dedicated teaching and learning;
• exposure to the excitement of creating new knowledge;
• stimulating the love of life-long learning;
• the cultivation of competencies for global citizenship;
• supporting programmes that stimulate the social consciousness of students;
• offering access to courses outside the conventional curricula;
• attracting a culturally and internationally diverse community of scholars;
• guaranteeing internationally competitive qualifications;
• offering a rich array of social, cultural, sporting and leadership opportunities;
• providing an enabling physical and operational environment.

In advancing UCT as an Afropolitan university, we will:
• expand our expertise on Africa and offer it to the world;
• extend our networks on the continent, along with our global connections and partnerships;
• promote student and staff exchanges and collaborative research and postgraduate programmes;
• engage critically with Africa’s intellectuals and world views in teaching and research;
• contribute to strengthening higher education on our continent.

We strive to provide an environment for our diverse student and staff community that:
• promotes a more equitable and non-racial society;
• supports redress in regard to past injustices;
• is affirming and inclusive of all staff and students and promotes diversity in demographics, skills and backgrounds;
• offers individual development opportunities to all staff;
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**RECOGNITION OF ACADEMIC MERIT**

**Distinction**

The rules for a degree may provide that the degree be awarded: with distinction; or with distinction in one or more individual subjects; or both; or if a degree of at least four years in duration, with honours or first class honours; or in the case of the degree of Bachelor of Laws, *cum laude* or *magna cum laude*.

**Class Medals**

A class medal may be awarded to a student who has shown special ability in a course. They are only awarded where special merit should be recognised. Only one medal may be awarded in a course. Any student who repeats a course will be ineligible for any medal in that course. A list of class medallists is published every December, once approved by the Faculty Examinations Committee.

**Dean's Merit List**

The Dean’s Merit List is published annually in recognition of academic excellence. It contains the names of students whose academic performance over the year is meritorious (70% average on full course load) and hence worthy of recognition. Students who qualify for inclusion in the list receive a letter of commendation from the Dean. The list is posted on the notice boards and published in the Dean's Circular and the newspaper of the Student Council. The academic transcripts of students are endorsed to record their achievements in qualifying for inclusion on the list.
The University is a community of scholars, students and staff. A community implies the shared acceptance by its members of common values. The concept of values implies not only rights but also obligations, for the community itself and for its individual members. This Statement of Values provides a framework that informs and governs what is considered by the University community to be appropriate and acceptable behaviour. The Statement also serves as the foundation for a range of University policies and guides the management of particular aspects of University life.

As a value-based community, we aspire to an encompassing ethos which:

- Promotes academic excellence and the attainment of the institutional goal of becoming a world-class African University.
- Preserves what is valuable in the history of the institution and of this country, and responds to the challenges posed by past injustices and unfair discrimination.
- Achieves social transformation, empowerment and participative governance.
- Affirms and protects the fundamental human rights enshrined in the Constitution.
- Encourages the institution and all its members to accept responsibility for the welfare of the community and for behaving in accordance with these community values.

**Values:**
We commit ourselves to:
- Truth, fairness, consistency and integrity in both academic and other work, and in all personal and institutional relationships.
- Compassion, generosity and concern for the needs and aspirations of others, and in particular for the challenges faced by the less privileged in our society.
- Respect and tolerance for cultural, religious, political, and other differences and acknowledge of the value of diversity in society.
- Respect for the individual privacy, dignity and the right to personal choice.
- Intellectual honesty, vigour in debate, openness to alternative ideas and respect for other views, beliefs and opinions.
- Commitment to high standards, personal fulfilment and the pursuit of excellence.
- The protection and responsible use of the University’s assets and resources.

**Actions:**
In the context of our recent history, we recognize the importance of affirming this ethos and promoting these shared values. Accordingly, we undertake collectively and individually:
- To promote and protect academic freedom.
- To oppose and take steps to prevent racial, gender or other forms of unfair discrimination, harassment, violence or abuse.
- To actively promote social justice and equity.
- To nurture a culture of learning which are supportive of students, scholars and teachers.
- To refrain from speech or conduct that demeanes or humiliates others.
- To encourage our members to enjoy life, to laugh, to love, to appreciate and take full advantage of the wealth of opportunities available to use in academic endeavour, in making friends, and in social, cultural and sporting activity.
- To advance the principle of open governance and to be fully accountable for our actions, decisions, and the stewardship of the University’s resources and mission.
- To nurture and empower our members.
ORIGIN OF THE BACHELOR DEGREE

The term ‘Bachelor’ derives from ancient ceremonies (the first such was believed to have been at Oxford in 1432) held to honour achievements of scholarship. The word derives from bacca lauri (laurel berry). Instead of the hoods we use today to signify your graduation, graduands of old wore garlands of laurel leaves and berries.

So the term has nothing to do with our modern understandings of what being a bachelor means, and everything to do with a long tradition of celebrating high achievement.
Welcome, Wamkelekile, Wêlkom – today is not the end of your relationship with the university but the beginning of a new phase in your continuing relationship with UCT, one that you share with the UCT community of over 100 000 alumni.

Diverse as this community is, the shared experiences of a critical academic ethos and a spectacular campus make for a strong network that has a wide footprint, not only in South Africa, but across the continent and the globe.

We set great store by our links with our alumni, and indeed the links alumni have with each other. We promise that we will be in touch, and ask you in turn to let us know not only your current contact details but also, from time to time, something of your lives and where you are in your careers.


– or by writing to the Alumni Office, UCT, PB X3 Rondebosch, 7701

or by contacting us on (27) (21) 650 3746.

Your alma mater looks forward to welcoming you back, whether to a public lecture, a leadership forum, your class reunion, or just an informal call!