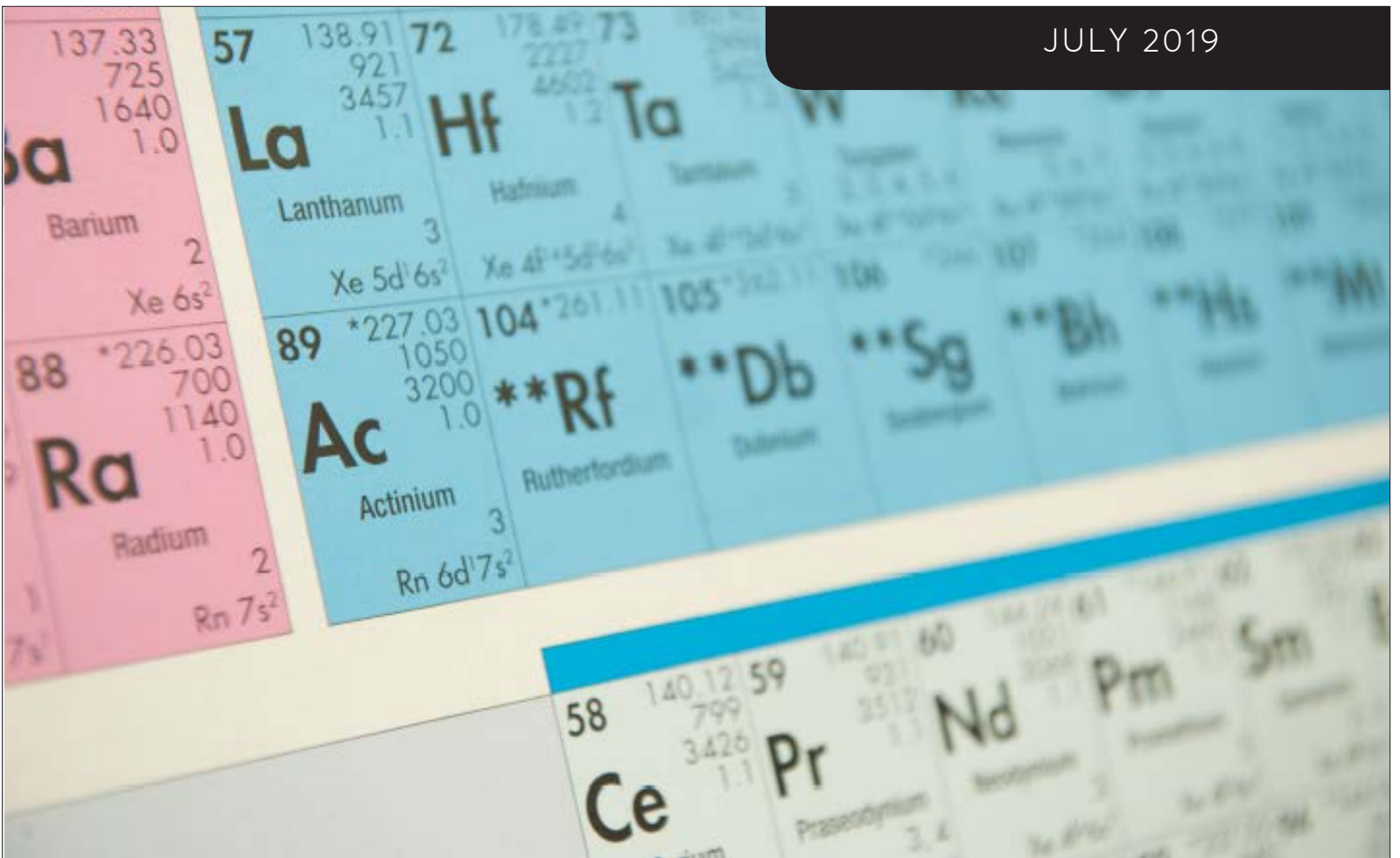


JULY 2019



SCIENCE @UJ

NEWSLETTER OF THE
FACULTY OF SCIENCE
UNIVERSITY OF JOHANNESBURG
LEADING SCIENTISTS, INNOVATIVE TECHNOLOGISTS

THIS ISSUE FEATURES:

AN HONORARY AWARD FOR
EXECUTIVE DEAN
WOMEN IN SCIENCE COMPETITION
HONORARY DOCTORAL DEGREES
STAFF PROMOTIONS
PUBLIC LECTURES
AND MORE



Did You Know: **The United Nations proclaimed 2019 as the International Year of the Periodic Table of Chemical Elements (IYPT 2019).**



A MESSAGE FROM THE EXECUTIVE DEAN

At the beginning of the second semester of 2019, we bring you the second Faculty newsletter, to congratulate on achievements (see the awards-report on pages 5 and 6) and also to serve as reminder of those areas where we need to exert more effort. For the latter, a renewed and concerted effort is needed to improve our module success rates which are down when compared to previous years. Although we graduated 138 masters (a record number) and 42 doctoral degrees in the 2018 graduation period, most of our doctorates were not awarded to South Africans, meaning we must step up our game and improve on this key performance area for this academic year.

Nobel Prize winner, Ben Feringa graced us with his presence in April, as did the daughters of Katherine Johnson, our 2nd honorary doctorate recipient. Our women scientists showcased their creativity, femininity and gracious team spirit by participating in a photo competition (see page 4) in honour of Katherine Johnson, which Dr Johnson's daughters commented on as 'a fitting gift for an accomplished scientist, and a true lady'.

I am moved by the 'transformation focused' presentations of the first two groups on the theme "Homo sapiens are from Africa". These informative and thought provoking presentations also highlights the quality of the research in the faculty.

Colleagues, I still encourage you to read through the quarterly Snippets, because if you don't, you will miss out on valuable tidbits of information about your fellow staff members. For example, how many of you noticed that the last Snippets reported on the artistry of Dr Carlecshi and Dr Koorsen? I'll give you a hint, it involves 'Sleeping Beauty' and Andre Bocelli. See page 7 of this newsletter and I dare you to not be impressed.

HONORARY AWARD FOR EXECUTIVE DEAN

The Faculty of Natural Sciences and Technology of the 'Suid Afrikaanse Akademie vir Wetenskap en Kuns (SAWK), in recognition of Prof Meyer's academic contributions to the Natural Sciences in South Africa is conferring an honorary award to the Executive Dean.

The award considered Prof Meyer's contributions to, and the continuous promotion of the natural sciences as well as the international standing of the faculty under her leadership (as reported on by various international ratings agencies).

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Note: The recent Shanghai Global Ranking (June 2019) of Academic Subjects features Physics, Geology and Geography, with debut appearances for Zoology and Mathematics (detailed in the next newsletter).

HONORARY DOCTORATES

In April, the University of Johannesburg (UJ) conferred two honorary doctoral degrees at the Faculty of Science.

UJ BESTOWS HONORARY DOCTORATE ON WORLD-LEADING CHEMIST AND NANOSCIENTIST



Prof Kinta Burger (Left), Prof Ben Feringa (Middle) and Prof Tshilidzi Marwala at the conferral ceremony on Tuesday, 2 April 2019.

Nobel Prize winner, Professor Bernard "Ben" Feringa, accepted an honorary doctoral degree from the University of Johannesburg (UJ) on Tuesday, 2 April 2019, conferred in recognition of his sterling international contributions to the Chemistry field and scientific community as a whole. "As a synthetic organic chemist, Prof Feringa's mission of serving humanity through innovation is in line with that of the University. His 'molecular motor' for drug delivery is undeniably unique and innovative, and promises to revolutionise treatment options for various diseases," said Professor Debra Meyer, the Executive Dean of Science at UJ. "In addition, his values of imagination and engaging meaningfully with others are shared by the UJ. It is no coincidence that so many postgraduate students credit his academic supervision, citing the experience as one that makes science accessible and tangible," added Prof Meyer. More on <http://bit.ly/2HJPx8Z>

Prof Feringa also presented two public lectures on "The Art of Building Small" and "Dynamic Molecular Systems from switches to motors" at Protea Auditorium, School of Tourism and Hospitality (UJ Bunting Campus).

UJ HONOURS NASA PIONEER AND AFRICAN-AMERICAN ICON KATHERINE JOHNSON



Joylette Hylick and Katherine Moore accepted an honorary doctorate on behalf of their mother, Katherine Johnson, at the University of Johannesburg (UJ) on Monday, 29 April 2019.

"Failure will never overtake you if you are determined to succeed. One cannot change the past but if you have passion you will find a way to make your dreams a reality". This was the message of Joylette Hylick and Katherine Moore when they accepted an honorary doctorate on behalf of their mother, Kathrine Johnson, at the University of Johannesburg (UJ) on Monday, 29 April 2019. UJ bestowed an Honorary Doctoral Degree on African-American icon, Katherine Johnson in recognition of her pioneering role and body of work at the National Aeronautics and Space Administration (NASA). "Mrs. Johnson paved the way for young women, in particular black women, to work and excel in STEM fields and she did this in a time when segregation was the norm, and the deliberate exclusion of black people from intellectual pursuits, the order of the day" says Professor Meyer. Katherine Johnson's mathematics talent and computer skills, gave the United States of America, the edge in winning the space race. More on <http://bit.ly/2HLhjCf>

WINNERS OF THE WOMEN IN SCIENCE COMPETITION

In January 2019, the Executive Dean challenged all women scientists in the Faculty of Science to participate in a campaign to celebrate women scientists.

The campaign was about reflecting on how far women scientists have come, in recognition of the achievements of pioneers like Mrs. Katherine Johnson, who was conferred with an honorary doctorate from UJ during the Faculty's April 29th Graduation.



Congratulations to the **Department of Botany and Plant Biotechnology** on winning the Women In Science Group Photo Competition.

The Department's group photo themes were "Science is our aim but versatility our game" and "Jill of all trades, master of all".

Their prize was a full-page advertisement in ISET CAREERS magazine and a "women's tea" sponsored by the Faculty.



The Department of Physics was the **1st runner-up**. Their group photo theme was "Diverse women unified in Physics".



The Department of Biochemistry was the **2nd runner-up** and the theme for their group photo was "We Are #IMBOKODO."

Thank you to all the women scientists who participated in the Women In Science campaign, including **Department of Chemical Sciences, Department of Mathematics & Applied Mathematics, Academy of Computer Science & Software Engineering, and Department of Geography, Environmental Management & Energy Studies.**

The beautiful photos from this campaign will be used to inspire young girls interested in science. The women scientists who participated in the campaign demonstrated the versatility of the roles they occupy in science and society as a whole. To see all the group photos, visit www.uj.ac.za/science

AWARDS & RECOGNITION

This section celebrates a selection of institutional, national and international awards received by members of the Faculty of Science in 2019



DR BANOTHILE MAKHUBELA AWARDED £300 000

The African Academy of Sciences and Royal Society awarded Dr Banothile Makhubela and 38 other FLAIR Fellows £300 000 each over 2 years as part of the £25 Million FLAIR scheme. The scheme supports African citizens establishing an independent research career on the continent and African researchers using their expertise to address the global challenges relevant to their countries. More on <http://bit.ly/2JKuhSN>



EMERGING LEADERS NETWORK AWARD FOR DR OLUWAFEMI ADEBO

The IFT Emerging Leaders Network recognised Dr Adebo (Biotechnology and Food technology) for demonstrating high potential for success in leadership roles and a strong commitment to the profession. The IFT Emerging Leaders Network (ELN) is a highly selective global leadership program established for new professionals in the science of food who are eager to expand their leadership skills. The program is designed to bridge the gap between the participant's academic experience and their on-the-job training. More on <http://bit.ly/2JOi3sc>



2018 ARTHUR E. MARTELL EARLY CAREER RESEARCHER PRIZE

Dr Leah Matsinha, a Postdoctoral Research Fellow under the Supervision of Dr Banothile Makhubela, won the prestigious Arthur E. Martell Early Career Researcher Prize for 2018. The Prize is awarded annually to an author of a high quality manuscript published in the Journal of Coordination Chemistry. Dr Matsinha's winning manuscript is available for free online until March 31, 2020. More on <http://bit.ly/2Qwm1GH>



2019 'HAVENGA' PRIZE FOR PROF IAN DUBERY

The "Suid Afrikaanse Akademie vir Wetenskap en Kuns (SAWK)" awarded Prof Ian Dubery (Biochemistry) with the 2019 'Havenga' Prize for original research in Life Sciences, an annual prestigious award conferred for original research in the natural sciences, in recognition of his innovative contributions to biochemistry and international academic reputation. More on <http://bit.ly/2JOBIs2>



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Meijboom "



Prof Nic Beukes (Left), and Prof Nikki Wagner
(Right)



TOP INTELLECTUAL PROPERTY CREATORS FOR UJ

Prof Charles Whitehead and Prof Reinout Meijboom were individually identified as Top Intellectual Property Creators for UJ (for the period 01/04/2011 – 31/03/2018) by the Department of Science and Technology.

Both Prof Whitehead and Prof Meijboom disclosed two different inventions; Prof Whitehead's inventions are "Carbon enrichment by foliar spray" and "Rapid screening of barley" and Prof Meijboom's inventions are "Silver Anti-Cancer (UJ3)" and "Synergistic effects of gold-palladium nanoalloys and reducible supports on the catalytic reduction of 4-nitrophenol".

This award category is a new initiative of the Department of Science and Technology (DST), managed by the National Intellectual Property Management Office (NIPMO), to incentivise top Intellectual Property (IP) creators at publicly financed research and development institutions. This incentive is awarded to IP creators for their passion in ensuring that their research has practical application and seeks to result in an innovation which can be of benefit to the people of our Republic. More <http://bit.ly/30V5PU3>

CIMERA CELEBRATES 5TH BIRTHDAY

The Centre of Excellence (CoE) for Integrated Mineral and Energy Resource Analysis (DST-NRF CIMERA) was launched on the 24th April 2014. It celebrated its 5th Birthday with a function in the Reading Room of the Department of Geology, and a number of distinguished guests were invited: Mr Nathan Sassman (NRF), Dr Carol Nonkwelo (UJ) and Prof Ina Wagenaar (UJ).

Prof Nikki Wagner (Director of CIMERA) and guests reflected on the success and achievements of the CoE. Prof Wagner then presented a gift to Prof Nic Beukes, the Founding Director, who stepped down at the end of 2018.

MORE AWARDS AND RECOGNITION

UJ has been ranked among the Top 500 globally and fourth nationally for the Physics & Astronomy subject in the 2019 QS World University Rankings by Subject. This marks the first time that the University has been ranked for this subject. UJ is within the 451-500 bracket globally.

The European Journal of Inorganic Chemistry dedicated a special issue to Prof Koop Lammertsma (DVP Chemical Sciences) and a colleague. Prof GM Wagenaar and Mrs UC Nibamureke featured on the cover of the South African Journal of Science: Women in Science without Borders issue in March 2019.

Mr Rhulani Maluleka was awarded a Mellon Mays Undergraduate Fellows Travel and Research Grant from the United States for his PhD studies to the value of \$4960 and Prof van der Haar presented and won best paper at ICICT in London on 25 - 26 February.

Dr BV Kheswa recently published an article in Physics Letters B, which has an impact factor of 4.254 and Dr S Malinga was featured in City Press newspaper for empowering youngsters in pursuing science and STEM-related fields.

COMMUNITY ENGAGEMENT

Community Engagement (CE) is one of the core functions of the Faculty of Science.

Through various science-related CE initiatives, the Faculty strives to create and consolidate a culture of 'giving back', to address specific community needs. To achieve this ethos, the Faculty encourages all staff to get involved in CE initiatives, create awareness about science, and share knowledge to uplift the community. More on <https://goo.gl/6G9Jg1>



Ms Gabolwelwe Mosina from Soweto Science Centre and learners at Scifest Africa 2019.

SOWETO SCIENCE CENTRE

Soweto Science Centre (SSC) is the Faculty of Science's community engagement flagship project.

The Soweto Science Centre collaborated with University of Fort Hare, through the FOSST Discovery Centre, to exhibit at **Scifest Africa 2019** in Grahamstown. SSC representative, Ms Mosina, introduced scientific concepts to grade 12 learners using Eureka e-learning 3D software. The Centre also exhibited at a **career day in Rustenburg township**, providing learners with interactive learning that allowed them to participate and ask questions about science related subjects.



Pictured above: Learners and parents from SSC's 2019 Intervention Program, which commenced with first quarter holiday classes

THE LIGHT SIDE OF SCIENCE

This section is about appreciating our scientists' other talents.



Dr Emanuela Carleschi performing at the ballet production of *The Sleeping Beauty*.

Many of the scientists at the Faculty of Science have 'hidden' talents. Today, we are shining the spotlight on Dr Emanuela Carleschi and Dr Gerrit Koorsen.

Dr Emanuela Carleschi (Physics) took part in the ballet production of *The Sleeping Beauty* by Joburg Ballet at the Joburg Theatre from 29 March to 7 April.

Dr Gerrit Koorsen (Biochemistry) was invited to play the cello in the orchestra for the Andrea Bocelli South Africa Tour 2019 performance in Johannesburg on 18 April.

PUBLIC LECTURES: 2019

The Faculty of Science will present more than 15 public lectures at the UJ Library and other venues this year.



The Faculty has hosted eight public lectures thus far, including several public lectures on 4IR, such as "Special functions and their applications to 4IR" presented by **Prof Ebrahim Momoniat** and Nanotechnology and "The Fourth Industrial Revolution" by **Prof Kriveshini Pillay** at Doornfontein Campus.

The Academy of Computer Science and Software Engineering also hosted 4IR talks, including a talk on Blockchain and smart contracts in April by **Prof Eric Koskinen** (PhD Cambridge University) from Stevens Institute of Technology.

The other 4IR talk from the Academy was a public presentation by award-winning writer, analyst, and technology commentator **Arthur Goldstuck**. It was hosted (in conjunction with UJ Library), and mentioned in the VC's circular.



Other lectures that also received attention from UJ's Senior Management include **Dr Buyi Sondezi's** public lecture on "Women in physics in South Africa" and **Prof Cornelis Potgieter's** (Senior Visiting Researcher at Statistics) public lecture "Measurement Error Modelling: Why and How?" which was mentioned in the Vice-Chancellor's circular in February.

Prof Berhanu Abegaz, a Distinguished Visiting Professor, also presented a public lecture on "Challenges and opportunities in the domain of Science, Technology and Higher Education in Africa".

The other lectures were "Dark Matter: A Journey into the Dark Universe" by Dr Gopolang Mohlabeng, "Sexual selection: an important driver of evolution" by Prof Bettine Jansen van Vuuren, and "The life and times of the early Earth" by Prof Bertus Smith.

The next public lecture will be on "**Why drugs are expensive, and can this change**" by **Prof Frank von Delft** (UJ Visiting Professor, from Oxford University) on **19 July, 12:00 – 13:00**, at Chinua Achebe Auditorium, APK Library, Kingsway Campus.

EVENTS UPDATES

This section highlights a selection of updates on events hosted or attended by members of the Faculty of Science on and off campus.

Special Events - Excursions, Seminars, Visits, Talks, Workshops, Exhibition and More

The Academy hosted a graduation ceremony for the Certificates in **Cyber Security and Digital forensics** as well as the Higher Certificate in Information Technology.

The Federal University of Agriculture, Abeokuta (FUNAAB) invited **Prof PB Njobeh** as a resource person on the training workshop "Mycotoxin analysis in food and feed" on 2 - 5 April.

Prof Mbianda and other colleagues will host a workshop entitled "New Frontiers in Separation Processes & Membranes Development A Bilateral Partnership South Africa – France" on 17 - 19 July.

Prof Greenfield hosted Prof Gray Williams, 10 undergraduate and 4 postgraduate students during the annual Tsitsikama excursion as part of the UJ and University of Hong Kong field course exchange program.

Mr Brian Greaves presented research at ICICT, London on 25-26 February.

Prof von Delft (Visiting Professor) attended and presented at the Biophysics & Structural Biology Workshop, 17-24 Jan 2019, Cape Town.

In March, **Prof Gijsbert Hoogendoorn** was invited as a Visiting Scholar by the Erasmus Mundus STEDE Program to present guest lectures at the Catholic University of Leuven in Belgium.

Dr Gareth Braatvedt will host a Nedbank Career Presentation for third-year, honours and masters students in Mathematics, Applied Mathematics, Computer Science, Mathematical Statistics, Quantitative Finance, Econometrics and Engineering.

Dr Tugizimana and Biochemistry staff and students, organized and attended the Metabolomics Symposium and Launch of Metabolomics South Africa (MSA), 11-15 March, Pretoria.

Dr MBC Simelane presented a talk at the 1st International Conference held in Vaal University of technology on 3-5 April.

Dr Zvinowanda and **Prof Moutloali** are organizing the 20th regional WaterNet conference which will be held at Indaba Hotel (Fourways) from 30 October to 1 November.

Prof van der Haar's student presented research at the 45th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM) 2019 conference in Slovakia. In addition, Prof van der Haar and a postgraduate student presented research at a conference in Ecuador.

In March, **Prof Ian Dubery** was an invited speaker at the 3rd Global Congress on Plant Biology and Biotechnology in Singapore.

In February, **Prof von Solms** visited the WEF's Centre for Cybersecurity in Geneva. He also gave an opening presentation, on behalf of Oxford's Global Cyber Security Capacity Centre, at the beginning of the national Cyber Security Maturity Evaluation of Mauritius in February. In addition, Prof von Solms acted as Moderator of a panel discussion during the Annual Conference of Oxford's Global Cyber Security Capacity Centre in Oxford.

Dr Rory Horner, a lecturer from the Global Development Institute at the University of Manchester and research associate at GEMES, visited the department in March and presented a seminar.

STAFF UPDATES

This section highlights a selection of staff updates e.g., promotions, appointments, ratings and professorial inaugurations

Appointment Highlights

Prof Bettine Jansen van Vuuren was elected as the chair of the South African National Committee for SCAR (Scientific Committee for Antarctic Research).

Dr Gopolang Mohlabeng, a Research Associate at the Brookhaven National Laboratory in New York (USA) has been appointed as a Visiting Research Associate at the Department of Physics. This was followed by a visit from him in March.

The Department also appointed two new Assistant Lecturers, **Mr Khuliso Murulane** and **Ms Sindisiwe Xhakaza**.

Prof Philiswa Nomngongo was appointed as the Interim SARChi (Nanotechnology and Water).

Dr Soraya Malinga was appointed as an interim DHOD T&L for Chemical Sciences DFC.

Prof Tappe and Prof Viljoen welcomed **Dr Shaikh Azhar** from IT Bombay India as a new postdoctoral fellow at the Department of Geology. Dr Shaikh will study diamond-forming processes in Africa and India.

Dr Siyabonga Majola was appointed as a lecturer at the Department of Physics' Doornfontein Campus, from 1 March 2019.



Professorial Inaugurations

In May, we celebrated the professorial inauguration of **Prof Annah Moteetee, Head of the Department of Botany and Plant Biotechnology**. More on <http://bit.ly/215peZV>

This year, we will also be celebrating the professorial inaugurations of Prof Hassina Mouri, Prof Henok Kiefe, Prof Kaushik Mallick, Prof Aletta Prinsloo, and Prof Samuel Oluwafemi.

Promotions

Prof Patrick Ndungu was promoted to **Full Professor**.

Prof Liza Bornman was promoted to **Full Professor**.

Prof Bryan Doyle has been promoted to **Associate Professor**.

Prof Leelakrishna Reddy was promoted to **Associate Professor**.

Dr Amina Nel was promoted to **Senior Lecturer**.

Staff Graduations

Both **Dr Govan Pahad** and **Dr Susan Jacobs** completed their doctoral degrees.

Mrs Refilwe Lukhwareni completed her MSc in Aquatic Health with distinction and **Mr Khuliso Murulane** graduated with an MSc in Physics with distinction.