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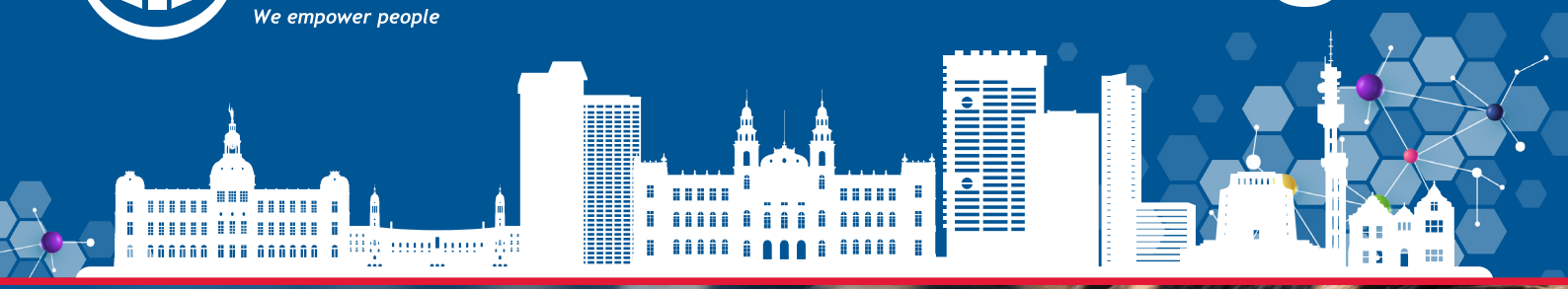


A YEAR OF PROGRESS, PARTNERSHIP AND SCIENTIFIC EXCELLENCE

GRADUATES MAKING HISTORY

MEET THE RESEARCHERS

Pharmaceutical Sciences researchers win multiple awards

Celebrating Excellence & Impact Beyond the Faculty

Contents

Message from the Acting Executive Dean of the Faculty of Science 1

A century for Prof Viljoen 2

Prof Katerere appointed to FIHO Board of Directors 3

Health and Safety Niche Seminar highlights prevention in practice 3

Graduates making history

Mariëtte Deist makes history in orthotics and prosthetics 4

Michelle Bester's doctoral research examined an often-overlooked aspect of railway safety 5

Meet the Researcher

Dr Terry Ellapen – Advancing Human Movement and Musculoskeletal Health 6

Dr Khuliso Maphakela – Investigating The Impact of Wastewater Pollution 7

Faculty of Science symposium connects teaching innovation with research that responds to society's needs 8

Pharmaceutical Sciences researchers win multiple awards 10

Excellence

Faculty of Science celebrates excellence at 2026 Awards Evening 11

Celebrating Excellence and Impact Beyond the Faculty 12



A year of progress, partnership and scientific *Excellence*

A message from the Acting Executive Dean, Faculty of Science



As 2026 draws to a close,it is an opportune moment to reflect, with a deep sense of gratitude and pride on the journey we have travelled together as the Faculty of Science. It has been a year of meaningful progress, remarkable achievements and, above all, the unwavering commitment of our staff and students to excellence in teaching and learning, advancing scientific discovery, embracing technology and innovation, and preparing future-ready graduates equipped to make a meaningful contribution to society.

I am proud that the Faculty of Science has continued to strengthen its position as an important contributor to Tshwane University of Technology's academic and research landscape. Across our 15 departments, research centres and academic programmes, our staff and students have demonstrated what can be achieved through collaboration, dedication and a shared commitment to excellence.

One of the highlights of the year was the milestone reached through our long-standing partnership with Stud Game Breeders®. Having invested more than R10 million in bursaries since 2011, the partnership continues to change lives and create opportunities for students pursuing careers in conservation. Similarly, hosting the 46th Annual Eskom Expo for Young Scientists provided an important platform for young innovators to showcase their ideas and **explore the exciting possibilities of science and technology.**

Our research community also had much to celebrate. We congratulate Prof Alvaro Viljoen **for being recognised** as the National Research Foundation's Champion of Research Capacity Development and Transformation, a recognition of his significant contribution to developing the next generation of researchers.

The R1.4 million research grant secured by Dr Takalani Mpofu for an international collaborative project on parasite-resistant sheep, together with our researchers' recognition as finalists in the NSTF-South32 Awards, further demonstrates the quality and relevance of research taking place within the Faculty.

Partnerships remained central to our progress. From the establishment of advanced CT technology through our collaboration with GE Healthcare to engagements with international institutions and industry partners, we continued to create opportunities that connect scientific knowledge with practical application. We value these relationships, which are essential in ensuring that our graduates are prepared for an increasingly complex and technologically advanced world.

I firmly believe that our responsibility extends beyond teaching and research. Initiatives such as the Tsoseletso Project, the environmental awareness mural developed with local and international partners, and our ongoing community engagement activities demonstrate the Faculty's commitment to sustainability, environmental awareness and meaningful societal impact.

For me, these achievements are not simply milestones on a calendar. They represent the collective contribution of people who work tirelessly to advance the Faculty: our academics, researchers, technical and administrative staff, students, alumni and external partners.

As we look towards 2027, I remain committed to building a Faculty that is innovative, entrepreneurial, research-driven and responsive to society's needs. Guided by TUT's Institutional Strategic Plan 2026–2035 and the theme *Entrepreneuring the Future Together*, we must continue to challenge conventional thinking, strengthen our partnerships and create opportunities for the next generation of scientists and professionals.

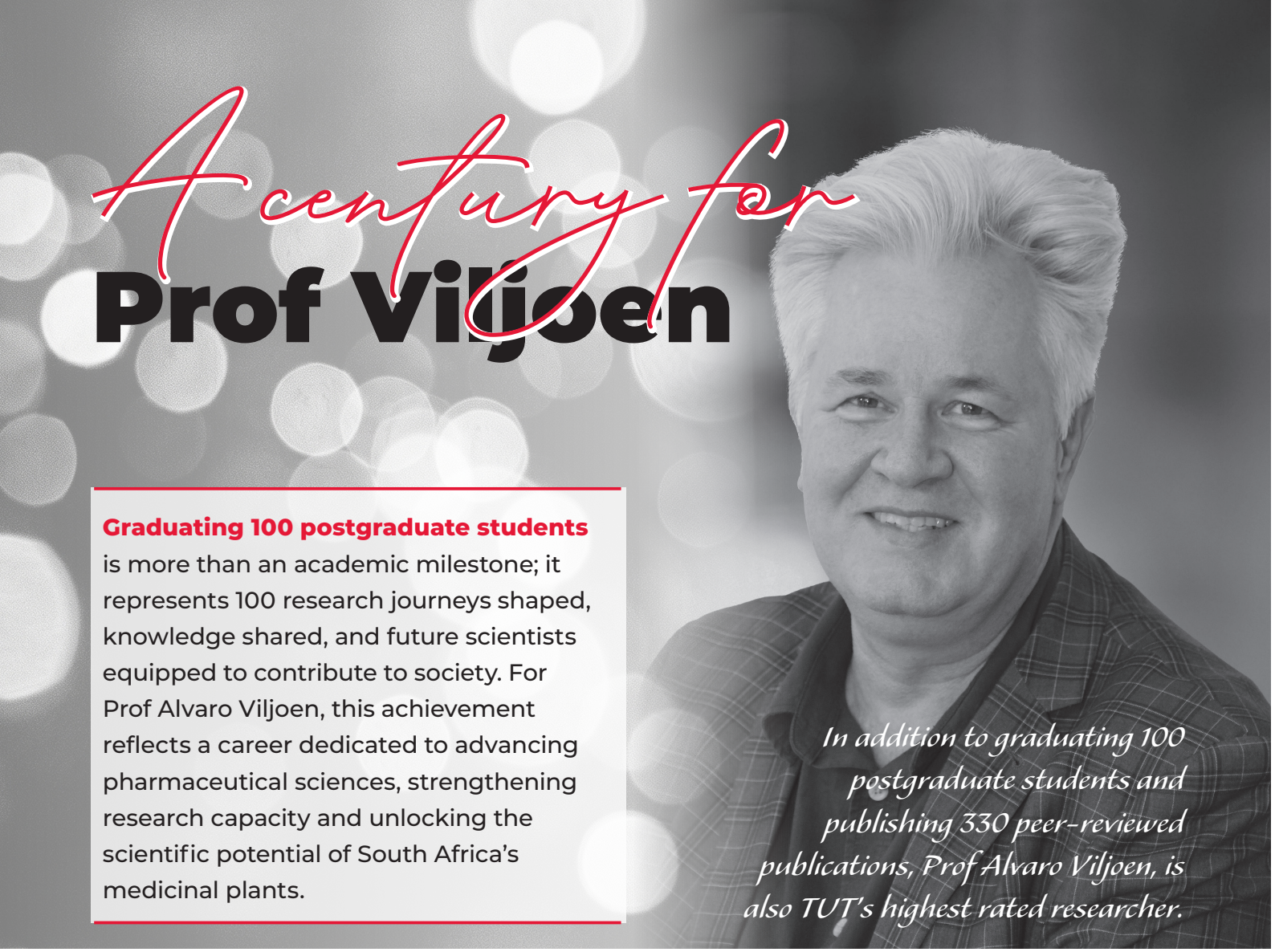
My heartfelt thanks go to everyone who has contributed to the Faculty's achievements during 2026. Your commitment, professionalism and resilience remain the foundation of our collective success. **I am truly grateful for all that we have accomplished together.**

May you and your families enjoy a well-deserved break, and may the festive season bring rest, happiness and renewed energy for the year ahead.

Dr Mathato Thaoge-Zwane

Acting Executive Dean: Faculty of Science

A century for Prof Viljoen



Graduating 100 postgraduate students is more than an academic milestone; it represents 100 research journeys shaped, knowledge shared, and future scientists equipped to contribute to society. For Prof Alvaro Viljoen, this achievement reflects a career dedicated to advancing pharmaceutical sciences, strengthening research capacity and unlocking the scientific potential of South Africa's medicinal plants.

In addition to graduating 100 postgraduate students and publishing 330 peer-reviewed publications, Prof Alvaro Viljoen, is also TUT's highest rated researcher.

Prof Viljoen, an NRF B2-rated researcher in the Faculty of Science, recently reached this milestone while earning the Best Publication Award in Pharmaceutical Chemistry from the Academy of Pharmaceutical Sciences of South Africa (APSSA). He was further recognised by the National Research Foundation (NRF) as the 2026 Champion of Research Capacity Development and Transformation at a South African Higher Education Institution. This award honours researchers who actively diversify and transform South Africa's scientific cohort through the postgraduate students they supervise.

His achievements were celebrated at the Tshwane University of Technology's 2025/2026 Academic Excellence Awards, where he received the Service Beyond the Call of Duty and Special Recognition Awards.

In addition to being the highest-rated researcher at TUT, he holds the Department of Science, Technology and Innovation-National Research Foundation (DSI-NRF) South African Research Chair Initiative (SARChI) Chair in Phytomedicine and serves as Unit Director of the South African Medical Research Council (SAMRC) Herbal Drugs Research Unit, based in TUT's Department of Pharmaceutical Sciences.

His research focuses on the chemistry, quality, safety and therapeutic potential of South African medicinal plants, combining indigenous knowledge with rigorous scientific investigation. His research team uses advanced scientific techniques to examine the chemical composition and biological activity of medicinal plants, assess herbal products and investigate potential safety concerns, including toxicity and interactions with conventional medicines.

An important contribution to this field has been the publication of the first South African Herbal Pharmacopoeia, providing a scientific reference for the identification, quality assessment and standardisation of medicinal plant materials.

Prof Viljoen's scholarly influence is reflected in his 330 peer-reviewed publications, which have collectively attracted approximately 16 000 citations. His Scopus h-index of 61 is currently the highest at TUT. He has also served as Editor-in-Chief of Elsevier's prestigious *Journal of Ethnopharmacology*, which has an impact factor of 6.8.

His research leadership has earned several national and international accolades. In 2025, he received the SAMRC Scientific Merit Award for Research Capacity Development and Transformation. He also received an NRF national award recognising his contribution to training Black researchers, the majority of whom were women.

Other honours include the Silver Medal from the South African Association of Botanists, the AU-TWAS-ROSSA Award, the Indigenous Plant Use Forum Award in 2021 for research capacity development in herbal medicine, and the Zandu Award in 2023 from the International Society for Ethnopharmacology.

Together, these achievements reflect a career that extends beyond scientific publications and awards. Through research, academic leadership and postgraduate mentorship, Prof Viljoen continues to strengthen South Africa's phytomedicine research capacity while contributing to the responsible and evidence-based use of medicinal plants.

Prof Katerere appointed to FIHO Board of Directors

Professor David Katerere, Co-Director of the TUT/CSIR Cannabis and Hemp Research Hub, has been appointed to the 2026–2027 Board of Directors of the Federation of International Hemp Organizations (FIHO).

His appointment strengthens African representation and scientific expertise in international discussions shaping the global hemp industry.

Prof Katerere also serves as the Research Platform Chair for Pharmaceutical and Biotech Advancement in Africa (PBA2) at Tshwane University of Technology (TUT). His appointment brings extensive expertise in pharmaceutical sciences, biotechnology and research to FIHO, which promotes international collaboration in hemp policy, regulation, research, standards and industry development.

The appointment reflects TUT's growing contribution to cannabis and hemp research and innovation. Relaunched in 2026, the University's Cannabis and Hemp Research and Innovation Platform integrates research, training, product development, extraction services and support for farmers, entrepreneurs and industry stakeholders.



Prof Katerere's research focuses on transforming raw materials into value-added products, including pharmaceutical applications, cannabis-based medicines, nutraceuticals and sustainable agricultural products. The work also explores opportunities to utilise hemp and cannabis waste streams for materials such as biochar.

FIHO brings together international leaders from across the hemp industry, including experts in policy, regulation, production, research, textiles and business development. Prof Katerere's appointment builds on TUT's existing relationship with the organisation. In 2024, the TUT/CSIR Cannabis Hub was recognised as its only paid-up African member.

His appointment provides an opportunity to bring South African and broader African research expertise into international discussions on hemp innovation, regulation, standards and sustainable industry development, further strengthening TUT's global research presence.



Professor David Katerere

Health and Safety Niche Seminar highlights prevention in practice

The Faculty of Science hosted a Health and Safety (OHS) Niche Seminar bringing together researchers, academics and industry practitioners to explore current occupational health and safety challenges under the theme, Beyond Compliance: Prevention in Practice.

The seminar provided a platform for postgraduate researchers and academics to share findings on a broad range of health and safety issues affecting workplaces and communities. The programme highlighted the multidisciplinary nature of occupational health and safety research, with presentations spanning healthcare, mining, transport, food safety and ergonomics.



Delegates attending the Faculty of Science Health and Safety (OHS) Niche Seminar, Beyond Compliance: Prevention in Practice.

Research topics included the impact of different infant-wearing methods on caregivers' pulmonary function, as well as the knowledge and training needs related to the safe handling of chemical agents among university students in Gauteng. Other studies focused on the management of asbestos in Gauteng healthcare facilities, human factors management standards within a commuter railway organisation, and food safety and hygiene practices among school food handlers.

Presenters also shared research on the management of diabetes mellitus through lifestyle modification in a Gauteng mine, while further studies explored the effects of infant-wearing heights on caregivers' pulmonary function.

The keynote address was delivered by Prof Nico Claasen of the University of Pretoria, who added valuable insight to discussions on occupational health, prevention strategies and workplace safety.

The diversity of research presented reinforced the importance of moving beyond compliance-driven approaches towards proactive prevention, evidence-based interventions and practical solutions that contribute to safer and healthier working environments.

The seminar forms part of the Faculty of Science's broader commitment to advancing research and knowledge exchange that address real-world challenges and promote meaningful societal impact

GRADUATES MAKING HISTORY

Mariëtte Deist makes history in orthotics and prosthetics

When Mariëtte Deist walked across the stage on 15 October 2026, she not only received a doctoral degree. She made academic history in South Africa.



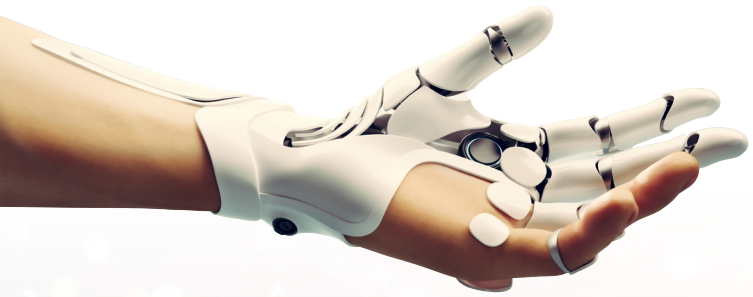
Dr Mariëtte Deist

Mariëtte Deist is the first person in South Africa to receive a PhD (Science): Medical Orthotics and Prosthetics. Deist became the first person in South Africa to receive a PhD (Science): Medical Orthotics and Prosthetics, a milestone that represents both a remarkable personal achievement and an important stage in the development of medical orthotics and prosthetics as an academic and research discipline.

The significance of the achievement lies in the qualification's specificity. Doctoral research relevant to prosthetics, rehabilitation and related areas has been undertaken in South Africa through broader academic fields. Deist's doctorate is different: medical orthotics and prosthetics is the discipline in which the qualification itself is situated.

Faculty of Science, through the Department of Rehabilitation and Dental Sciences, has developed postgraduate academic capacity specifically within medical orthotics and prosthetics. TUT is currently the only South African university with CHE-recognised Master's and PhD programmes specifically in medical orthotics and prosthetics.

Deist's own research demonstrates why this distinction matters. Her thesis, entitled "*The Development of a Competency Framework and Assessment Tool for Final Year Students in Medical Orthotics and Prosthetics at a University in South Africa*", investigates how the exit-level competence of final-year medical orthotics and prosthetics students can be defined and assessed in the South African context.



At the centre of the research is a fundamental professional question: what must a graduate demonstrate before entering independent practice?

Deist's response is a competency framework aligned with the minimum standards for the education and training of medical orthotists and prosthetists prescribed by the Health Professions Council of South Africa. From this framework, she developed an approach for assessing whether final-year students have acquired the competencies required for independent professional practice.

For Deist, this research is closely connected to a career spanning more than three decades across clinical practice, academia, programme management, professional leadership and research. She became closely involved in the development and growth of the Medical Orthotics and Prosthetics programme, contributing to curriculum design, programme implementation and industry engagement. She was instrumental in the development and establishment of the Bachelor's programme and has led key aspects of teaching and learning within the senior years of study.

Her academic progression also reflects the discipline's own development. When Deist pursued her Master's degree in 2015, there was no Master's qualification in orthotics and prosthetics available in South Africa that met her academic and professional requirements. She, therefore, obtained a Master of Science in Prosthetics Rehabilitation Studies from the University of Strathclyde.

That qualification subsequently contributed to the academic capacity required to develop and deliver postgraduate education in the discipline. The same principle applies at doctoral level: the establishment of postgraduate qualifications requires academics with appropriate postgraduate expertise to teach, supervise and develop research within the field.

Her contribution to the development of orthotics and prosthetics within South African higher education extends beyond the university. She was co-opted to the Orthotics and Prosthetics Board of the Health Professions Council of South Africa in 2012 and subsequently re-elected, including serving as Vice Chair. Her professional contributions have included education, accreditation and professional standards. Internationally, she has been involved with the International Society for Prosthetics and Orthotics, including scientific and education-related activities.

One of her proudest professional achievements has been leading the process of securing international accreditation for TUT's Medical Orthotics and Prosthetics programme through ISPO. The accreditation provided international recognition that the programme had been evaluated against standards within the specific professional field of orthotics and prosthetics.

Deist has identified her goal as becoming a leader in research in orthotics and prosthetics. Her PhD provides an important foundation for that ambition, but its significance reaches beyond her individual career.

When she receives her doctorate on 15 October, she became the first person in South Africa to hold a PhD (Science): Medical Orthotics and Prosthetics. It is a personal milestone built on decades of clinical and academic experience, but it will also represent something larger: the continued establishment of medical orthotics and prosthetics as a discipline capable of generating its own doctoral research, developing its own academic expertise and shaping the future of its profession.

GRADUATES MAKING HISTORY

Michelle Bester's doctoral research examined an often-overlooked aspect of railway safety

Every day, train drivers take responsibility for the lives of the people sitting behind them. Their job demands concentration, vigilance and sound judgement, often for long hours, under conditions that can be physically and psychologically demanding.



Dr Michelle Bester

But what happens to the person in the driver's cab?

That question lies at the heart of Dr Michelle Bester's doctoral research, which she completed at the Tshwane University of Technology (TUT) in 2026. Her study examined an often-overlooked aspect of railway safety: the psychological well-being of the people responsible for operating trains.

Bester's research focused on train drivers in Gauteng and explored the pressures they face in an environment with little room for error. These include demanding work schedules, fatigue, heavy workloads, concerns about workplace safety and infrastructure, and the possibility of experiencing traumatic events associated with railway operations.

For Bester, however, these challenges cannot simply be viewed as problems for individual workers to solve on their own. The environment in which people work matters.

Her research found that factors such as leadership, workplace culture, working conditions, the organisation of shifts and workloads, and access to appropriate support can all influence the well-being of railway employees. In other words, keeping a train driver healthy and psychologically fit is not simply a matter of telling the individual to cope better. The workplace itself has a role to play.

This insight became the foundation for the most important outcome of her doctoral research: a practical support programme specifically designed for train drivers.

The programme is built around three interconnected areas – leadership and employee engagement; work organisation and job demands; and health and wellbeing. Together, they provide a framework for identifying risks earlier, supporting employees more effectively and creating healthier working environments. It is an approach that connects two issues that are often discussed separately: employee wellbeing and public safety.

A train driver who is exhausted, under extreme pressure or struggling after a traumatic experience is not only dealing with a personal challenge. In a safety-critical occupation, their wellbeing can have consequences far beyond the individual.

That realisation has shaped much of Bester's professional life.

A registered nurse since 1992, she has worked across clinical nursing in both the public and private sectors, occupational health, management and nursing education. Her experience in the railway sector gave her a particularly close view of the relationship between employee health and operational safety.

As an occupational health practitioner, she was responsible for employee health and wellness programmes, medical surveillance, health risk assessments and other occupational health requirements. Her doctoral research allowed her to take those practical experiences into the academic world and bring the evidence back into practice.

Her career has also taken her into professional leadership. Bester has been an active member of the South African Society of Occupational Health Nursing Practitioners (SASOHN) since 2012, serving in a number of leadership positions, including Pretoria regional Chairperson, national Executive Committee Representative and National Educational Representative. From 2022 to 2024, she served as President of SASOHN.

Her involvement extends beyond South Africa. Since 2019, she has been a member of the International Commission on Occupational Health, where she served as Secretary of its Scientific Committee for Education and Training. In 2022, she completed the International Council of Nurses Global Nursing Leadership Institute programme, strengthening her work in nursing leadership, policy engagement, and the translation of research into practical change.

At TUT's Adelaide Tambo School of Nursing Science, Bester continues to combine these different strands of her career. She teaches undergraduate and postgraduate students, supervises postgraduate research, contributes to curriculum development, and serves on faculty committees concerned with student success, research, and innovation. She is also a peer reviewer for professional health journals.

Her journey from practising nurse to occupational health specialist, professional leader and researcher has given her a perspective that crosses the traditional boundaries between

MEET THE RESEARCHER:

Dr Terry Ellapen — ADVANCING HUMAN MOVEMENT AND MUSCULOSKELETAL HEALTH



Dr Terry Jeremy Ellapen is a lecturer in the Department of Human Movement and Therapeutic Sciences with more than 20 years of academic experience in teaching and research. He holds two doctoral degrees: a PhD in Exercise Physiology from the University of Zululand (2007) and a PhD in Biokinetics from TUT (2026).

His academic and research career has focused on understanding how the human body responds to physical activity, exercise and everyday physical demands. His first doctoral study established the importance of incorporating high-resistance strength training into endurance-running programmes for Comrades Marathon athletes. His second PhD investigated the ergonomic benefits of carrying infants in front-mounted carriers rather than traditional back carriers, particularly among rural South African caregivers.

Dr Ellapen's research focuses on injuries and physical conditions affecting the muscles, bones, joints and nervous system, both in sporting environments and the workplace. He has also investigated the prevalence of non-communicable diseases and advocated for the greater recognition and integration of Biokinetics within South Africa's public healthcare system through his academic publications.

Research with a community impact

An important part of Dr Ellapen's recent research has focused on the physical challenges experienced by rural South African women who carry heavy loads on their heads or carry infants on their backs.

These traditional practices can place considerable strain on the body, potentially contributing to postural problems, breathing difficulties and musculoskeletal pain. His research has investigated these challenges and explored more ergonomic ways of carrying loads and infants to reduce physical strain and improve quality of life.

The findings have the potential to inform practical interventions that address everyday health challenges, particularly among rural communities where these carrying practices remain common.

Building the next generation of researchers

In addition to his research, Dr Ellapen contributes to undergraduate teaching in Neuromusculoskeletal Rehabilitation, Sport and Exercise Psychology, and Research Methodology. He has also successfully supervised



Dr Terry Ellapen receiving his second doctoral degree from Deputy Registrar, Dr Solly Pooe.

15 master's and six doctoral students, contributing to the development of future researchers and professionals in the field.

His research portfolio includes more than 90 peer-reviewed journal articles and 15 book chapters published in national and international publications. He has also secured research grants and generated research funding through his scholarly activities.

Recognised as a C2-rated researcher by the National Research Foundation (NRF), Dr Ellapen continues to contribute to research excellence, postgraduate development and the application of scientific knowledge to real-world health challenges.

Through his work, he demonstrates how research in human movement and biokinetics can extend beyond the sporting arena to address everyday health concerns, improve physical well-being and make a meaningful difference in communities.

MEET THE RESEARCHER:

Dr Khuliso Maphakela — INVESTIGATING THE IMPACT OF WASTEWATER POLLUTION

Dr Khuliso Maphakela is a Technologist in the Department of Chemistry, where she manages the Analytical Instrumentation Laboratory. Her research focuses on environmental analytical chemistry and toxicology, particularly the quality of wastewater discharged into South Africa's rivers and wetlands and its potential impact on aquatic ecosystems.

A proud TUT alumna, Dr Maphakela completed all her academic qualifications at the University, progressing from a National Diploma in Analytical Chemistry to a Doctor of Philosophy (PhD) in Science. She joined the Department of Chemistry as a permanent staff member in May 2024.

Beyond her research, Dr Maphakela is passionate about sharing scientific knowledge and inspiring young people to pursue careers in science. She has participated in initiatives such as National Science Week and the Eskom Expo for Young Scientists. She also mentors and supervises undergraduate students, helping them develop their academic and practical laboratory skills.

Research that protects our water resources

Her doctoral research investigated the presence of steroid hormones in wastewater discharged into the Blesbokspruit Wetland and its tributaries. These hormones can enter the environment through wastewater and may affect aquatic organisms and the ecosystems they depend on.

The study examined seven steroid hormones, including naturally occurring hormones such as oestrogen, progesterone and testosterone, as well as synthetic hormones used in medication. It also investigated the potential toxicity of wastewater effluent using zebrafish embryos and laboratory cell tests.

The findings confirmed the presence of steroid hormones in wastewater discharged from treatment plants in the Ekurhuleni Municipality, as well as in surrounding water bodies. The study also identified toxic effects, including developmental abnormalities and mortality in exposed zebrafish embryos, as well as toxic responses in laboratory cell tests.

These findings highlight the importance of regularly monitoring wastewater quality and improving existing treatment technologies to remove emerging contaminants that may not be adequately eliminated through conventional treatment processes.

The research is particularly relevant to the protection of the Blesbokspruit Wetland, one of South Africa's largest wetlands and a site of international importance. Protecting these ecosystems is essential for maintaining biodiversity and safeguarding water resources.

Dr Maphakela's research contributes directly to **three United Nations Sustainable Development Goals**: **SDG 3** – Good Health and Well-being; **SDG 6** – Clean Water and Sanitation; and **SDG 14** – Life Below Water.

Through her work, she demonstrates how scientific research can help address environmental challenges while contributing to the protection of South Africa's natural resources and the development of a more sustainable future.

Faculty of Science symposium connects teaching innovation with **research that responds to society's needs**

The Faculty of Science concluded its three-day Teaching, Learning and Technology and Research & Innovation Symposium on 21 October 2026, bringing together academics and researchers to share ideas on preparing future-ready graduates and developing research that addresses real-world challenges.

The three day programme opened with a Teaching and Learning Day under the theme "*Science for everyone: Inspiring Students, Advancing Knowledge and Shaping the Future of Society*." Research presentations followed on Tuesday and Wednesday, 20–21 October, with contributions across the broad fields of Health Sciences, Agricultural Sciences and Natural Sciences.

Over three days, the symposium provided a platform to consider how teaching innovation, collaboration, and research can contribute to the university's Institutional Strategic Plan (ISP) 2026–2035. The programme's focus on future-ready graduates, digital transformation, research and innovation, and environmental sustainability reflects key priorities within the institutional plan.



Best Presentation & Best Poster Award winners for the Research & Innovation segment: Ms M. Kotlolo & Mr K Mohlamonyane right, with Dr L Repsold, Chairperson: Human Research Ethics Committee, and Prof Y Paul, Assistant Dean: Research & Postgraduate Studies.

The Teaching and Learning Day focused on how higher education can respond to changing student needs, technological developments and the demands of the world of work. The keynote presentation by Prof M. Maleka, "***WIL through the lens of the industry HRM experts***," brought work-integrated learning into the discussion, reinforcing the importance of connecting academic preparation with workplace expectations.

Presentations explored curriculum responsiveness, student success, sustainability in teaching, artificial intelligence (AI), and collaborative approaches to learning. These discussions were closely aligned with the ISP's emphasis on nurturing future-ready graduates and establishing a digitally transformed university.

The joint winners of the Teaching and Learning Day, awarded **Best Presentation Award,** were **Dr E. Sihlangu** of Animal Sciences and **Dr C. Ogilvie** of Nature Conservation, who presented a faculty departmental collaborative paper entitled ***"Transforming Learning Through Green Pedagogical Innovation and Sustainable Development Goals-Aligned Education at TUT,"*** which examines how sustainability and the United Nations Sustainable Development Goals can be incorporated into teaching, learning and assessment across disciplines. It highlights the role of universities in preparing graduates who can think critically, collaborate and contribute to sustainable development.

The second joint winner was the presentation by **L.T. Hazelhurst** and **B.B. Johnson** of Biomedical Sciences, ***"Modelling the Message: Interprofessional Faculty Co-Teaching in Clinical Education and Mentoring."*** The presentation demonstrated how educators from different professional backgrounds can co-design and co-teach learning experiences, modelling shared decision-making and collaboration for students preparing for team-based healthcare practice.

Together, the joint-winning presentations illustrated two complementary priorities: embedding sustainability in the educational experience and preparing graduates to work collaboratively across professional boundaries.

The Research Days, kicked off with a keynote presentation by Prof Ray Jansen from the Department of Environmental, Water & Earth Sciences.

Prof Ray Jansen shared the conservation, research, rehabilitation and rewilding journey of Kulu, a rescued Temminck's ground pangolin featured in the Netflix documentary Pangolin: Kulu's Journey. His keynote illustrated how scientific knowledge, conservation research and human commitment can work together to protect biodiversity.
Prof Pius Owolawi of TUT's Faculty of Information and Communication Technology focused on Artificial Intelligence (AI) and its role in advancing science, innovation, education and society. His keynote addressed the opportunities and challenges of emerging technologies, and the importance of ensuring that AI contributes to scientific progress and solutions that are accessible and beneficial to society.

Health Sciences presentations considered how research can support more accessible, effective and sustainable healthcare. Topics included pharmaceutical formulation, patient education, physical functioning among older people, medicinal plants and health monitoring.

The **Best Oral Presentation Award** went to **Ms M. Kotlolo** from the Pharmaceutical Sciences for the study ***"Formulation of Paediatric Orodispersible Tablet with Abacavir, Lamivudine and Dolutegravir."***
The research investigated a rapidly dissolving tablet combining three antiretroviral medicines for paediatric use. The study reported that a laboratory-scale batch of 500 tablets could be manufactured using direct compression, with results supporting the feasibility of the formulation. Further work is required on production scale-up, clinical validation and product registration, while palatability and acceptability also require further investigation.



The joint winners of the Teaching and Learning Day, awarded the Best Presentation Award, were Dr E. Sihlangu of Animal Sciences and Dr C. Ogilvie of Nature Conservation, who presented a faculty departmental collaborative paper with Prof Y Havenga and Dr WK Modiba.



Second joint winner for Best Presentation: L.T. Hazelhurst and B.B. Johnson of Biomedical Sciences

The work illustrates how pharmaceutical research can address practical treatment challenges, particularly the need for suitable formulations for children living with HIV. It aligns with the symposium's Health Sciences theme of advancing equitable, integrated and sustainable healthcare.

The **Best Poster Presentation** went to **Mr K Mohlamonyane**, also from Pharmaceutical Sciences, for his research titled ***"DESI-MSI as a Hyphenated Technique for the Differentiation of Pelargonium sidoides and Pelargonium reniforme."***
The study used advanced chemical imaging to distinguish between these two closely related South African medicinal plants by mapping the distribution of specific compounds in their roots. The findings could support more reliable identification and authentication of medicinal plant material used in traditional medicine.

Agricultural Sciences presentations explored livestock health, soil quality and improved chickpea production, highlighting ways to strengthen food security and sustainable farming. Natural Sciences research focused on conservation, water quality, pollution and biodiversity. These topics support TUT's strategic priorities of developing future-ready graduates and advancing research and innovation, while contributing to the United Nations' Sustainable Development Goals through improved health, quality education, responsible use of natural resources, climate resilience and environmental protection. By bringing together Health, Agricultural and Natural Sciences, the symposium demonstrated how collaboration across disciplines can help address South Africa's health, food security and environmental challenges.

Pharmaceutical Sciences researchers win multiple awards

The Department of Pharmaceutical Sciences in the Faculty of Science at Tshwane University of Technology (TUT) achieved notable recognition at the 4th National Pharmacy Conference held at the Inkosi Albert Luthuli International Convention Centre in Durban.

The conference brought together pharmacy professionals, researchers, and academics under the theme **"A Glimpse into the Future: Advancing Pharmacy Towards 2050".** Hosted by the South African Pharmacy Council, the conference provided a platform to discuss the future of pharmacy, including the role of research, innovation and emerging technologies in advancing healthcare.

Simoné Heuer received the Young Scientist – Pharmaceutical Sciences Award at the National Pioneer Pharmacy Awards on 13 October 2026, with her presentation entitled "Comparative stability evaluation of *Lessertia frutescens* and *Aloe ferox* raw materials and commercial herbal products under real-time and accelerated storage". Her research is supervised by Prof Eugene Olivier and co-supervised by Prof Alvaro Viljoen. Her achievement highlights the importance of developing emerging researchers and creating opportunities for young scientists to contribute to pharmaceutical knowledge and innovation.



Simoné Heuer received the Young Scientist Award.

The Academy of Pharmaceutical Sciences of South Africa (APSSA) Best Publication Awards recognise outstanding research publications across four pharmacy disciplines. This year, researchers from the Department of Pharmaceutical Sciences received two of the four Best Publication Awards, highlighting the Department's contribution to pharmaceutical research.

Prof Alvaro Viljoen received the 2026 APSSA Best Publication Award in Pharmaceutical Chemistry for the publication *"South African Propolis: Anti-Helicobacter pylori Activity, Chemistry, and Toxicity"*, authored by S Dinat, A Orchard, E Ncube, W Chen, A Viljoen and S van Vuuren.

Prof Ilze Vermaak received the 2026 APSSA Best Publication Award in Pharmacology for the publication *"Exploring the Wound Healing Potential of Lobostemon fruticosus Using In Vitro and In Vivo Bioassays",* authored by MR Kgosana, M Sandasi, E Ncube, I Vermaak, C Gouws and AM Viljoen.



Prof Ilze Vermaak received the 2026 APSSA Best Publication Award in Pharmacology.

Receiving two of the four awards is a significant achievement for the Department and recognises the collective contribution of the researchers and their co-authors. These achievements reinforce the Faculty of Science's commitment to impactful research, innovation and the development of future-ready researchers who can contribute to South Africa's evolving healthcare needs.



Faculty of Science celebrates excellence at 2026 Awards Evening

The Faculty of Science celebrated outstanding achievements by its staff, researchers, students and academic departments at its annual Faculty of Science Excellence Awards, held on 30 October 2026.

The evening recognised excellence across teaching and learning, research and innovation, community engagement and individual achievement, acknowledging the contributions of those who continue to advance the Faculty.

Among the headline recipients, **Dr Kailen Padayachee** received the Faculty of Science *Alum of the Year Award*, the Department of Biomedical Sciences received the *Community Engagement Award*, while **Professor Ray Jansen** was named *Newsmaker of the Year* for his international contribution to conservation awareness and science communication.

Teaching and learning excellence was recognised through the Faculty Lecturer of the Year Award, presented to **Dr Johan Linde**. The Department of **Animal Sciences** received the *Teaching and Learning with Technology Champion Award*, while the Department of **Rehabilitation and Dental Sciences** received the *Success Rate Improvement Award*.

Research excellence was also celebrated, with **Professor Khathutshelo Nephawe** named *Male Researcher of the Year* and **Dr Tshifhiwa Nangammbi** *Female Researcher of the Year*. The *Early Career Researcher* awards went to **Dr Oscar Rikhotso** and **Dr Oratilwe Mokoena**, while **Dr Raeesa Battey** received the Female *Early Career Researcher Award*.

The *Postdoctoral Fellow of the Year* awards recognised **Dr Tsireledzo Makwarela** and **Dr Mere Idamokoro** in the male and female categories respectively.

The awards evening brought together colleagues and guests to celebrate the achievements, dedication, and contributions of the Faculty of Science community.



Female Researcher of the Year
Prof Tshifhiwa Nangammbi



Male Researcher of the Year
Prof Khathutshelo Nephawe &
Acting Executive Dean Dr Mathoto Thaoge-Zwane



Lecturer of the Year
Dr Johan Linde and Assistant Dean: Teaching & Learning Health Sciences Prof Yolanda Havenga

Celebrating Excellence and Impact Beyond the Faculty

The awards recognise individuals and teams whose achievements extend beyond their immediate roles, making a meaningful contribution to the Faculty, the university and society. They celebrate exceptional alumni achievement, the impact of science in the public domain and a commitment to serving and engaging with communities.



Dr Kailen Padayachee

recognised as Faculty of Science Alum of the Year 2025

From a student to an internationally recognised conservation scientist, Dr Kailen Padayachee's journey exemplifies the far-reaching impact of a Faculty of Science education.

A proud alumnus of Tshwane University of Technology (TUT), Dr Padayachee completed his National Diploma, BTech and MTech in Nature Conservation before obtaining his PhD in Conservation Biology from the University of Cape Town.

His research into pesticide contamination in raptor populations has contributed to international scientific knowledge and strengthened the visibility of conservation research.

Beyond academia, Dr Padayachee has made significant contributions to wildlife protection, community development and conservation education.

As Co-founder and Director of the KaiNav Conservation Foundation, he leads initiatives addressing wildlife poaching and the illegal bushmeat trade.

His international work as an Expedition Lecturer, Guide and Education Coordinator with Silversea Cruises has also taken conservation education to audiences across several continents.

His leadership includes chairing the TUT Nature Conservation Academic Advisory Board and serving on the boards of the iSimangaliso Wetland Park Authority and UNESCO Magaliesberg Biosphere Reserve.

In recognition of his academic achievements, conservation leadership, international contribution and continued commitment to his alma mater, Dr Kailen Padayachee received the Faculty of Science **Alum of the Year Award 2025.**



Professor Ray Jansen

named Faculty of Science Newsmaker of the Year 2025

Few scientific stories have captured international attention quite like the work of Professor Ray Jansen, whose decades of research and advocacy for pangolin conservation have brought South African science into the global spotlight.

A leading authority on pangolins and the illegal wildlife trade, Professor Jansen has consistently used his scientific expertise to raise awareness about one of the world's most threatened mammals. His work has featured across radio, television, newspapers, documentaries and international media, helping translate complex conservation research into accessible stories for wider audiences.

His international profile reached new heights in 2025 through his prominent contribution to the Netflix documentary *Pangolin: Kulu's Journey*. A supporting media-reach assessment estimated a conservative global cumulative audience of between 20 and 70 million people across streaming platforms, news media, radio, podcasts and public outreach.

His media coverage has included prominent international platforms such as CBS News, BBC, CNN, Sky News and the Financial Times, alongside extensive South African media coverage.

Beyond the impressive audience figures, Professor Jansen's contribution lies in giving conservation science a powerful public voice, raising awareness of wildlife trafficking and **showcasing the importance of South African research on the international stage.**

In recognition of his outstanding contribution to science communication, conservation awareness and the visibility of the Faculty of Science, Professor Ray Jansen received the **Newsmaker of the Year Award 2025.**

Department of Biomedical Sciences receives *Community Engagement Award 2025*

Taking science beyond the classroom and making a tangible difference in communities was at the heart of the Department of Biomedical Sciences' community engagement initiatives during 2025.

Throughout the year, **the department demonstrated the value of connecting scientific knowledge with practical service and community needs**. Staff and students engaged with schools through interactive demonstrations and career guidance, participated in the Eskom Expo for Young Scientists as exhibitors and judges, and introduced hundreds of young people to the possibilities within biomedical and health sciences.

The department's outreach extended to animal welfare organisations and agricultural communities, where students gained valuable practical experience and farmers benefited from free livestock diagnostic testing through a mobile laboratory at the Beestekraal Farmer Expo.

A particularly impactful initiative was the department's Organ Donor Drive, which attracted approximately 300 people to its formal programme, generated more than 70 additional interactions and resulted in 22 new registered organ donors.

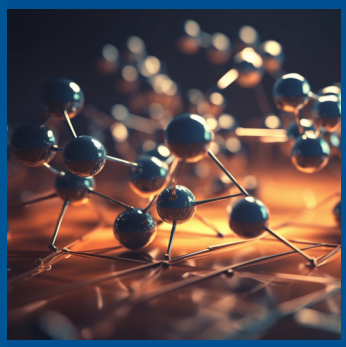
The Community Engagement Award 2025 recognises the department's sustained commitment to community service, experiential learning and meaningful societal impact.



The victorious Department of Biomedical Sciences








Faculty of Science

Tshwane University of Technology

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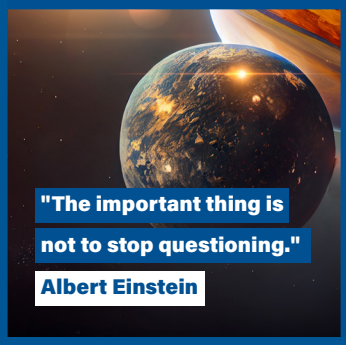










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