



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# JuniorTukkie

November 2021 Edition

MAGAZINE

## OLYMPIC GOALD

MEDALIST TATJANA SCHOENMAKER

### Inside this issue:

TuksSport High School celebrates  
its world-class athletes

Awards and medals to top  
performers

Rewarding careers in Ecology and  
Entomology

Fun during EBIT's Robot Race Day

 Investec

[www.up.ac.za/juniortukkie](http://www.up.ac.za/juniortukkie)





# Contents

November 2021 EDITION



4

## How UP faculties are making blended learning work in the academic environment

### EDITORIALS

- 2 Blended learning: Associated observations and life lessons by Mr Setlogane Manchidi
- 2 jTOnline by Dr Petrus Lombard
- 3 Be the author of your unfolding story by Anthea Pretorius

### NEWS

- 8 UP awards nine top-performing graduates for undergraduate excellence
- 9 Mail & Guardian and UP celebrate those who make a positive impact on society
- 11 Excellent students go beyond and above!

### INSPIRATION

- 13 Are you suffering from COVID-related trauma?
- 14 19 traits of highly creative people
- 15 Emotional detox: Seven steps to release toxicity and energise joy
- 17 How Moja Gabedi, an urban garden, is transforming a neighbourhood
- 19 FLY@UP—The Finish Line is Yours
- 20 Higher learning with hybrid learning

### FACULTY NEWS

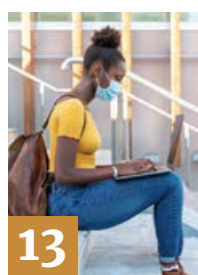
- 21 Economic and Management Sciences
- 25 Education
- 27 Engineering, Built Environment and Information Technology
- 37 Health Sciences
- 39 Humanities
- 41 Law
- 45 Natural and Agricultural Sciences
- 54 Theology and Religion
- 55 Veterinary Science

### TUKSSPORT

- 57 TuksSport High School is producing world-class athletes
- 60 Blignaut is one of SA's rising sports stars
- 61 Mohale says her mother's advice is the reason she is an Olympian hockey player
- 62 Mahlangu set his sights on winning a gold medal in the 200 m at the Tokyo Paralympic Games

### UP RESIDENCES

- 63 House Asterhof is a residence like no other!
- 65 Tirisano, a house where integrity matters



13



15



21



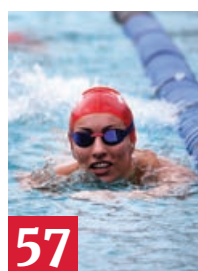
27



39



49



57



64

Improve your marks.  
Grow personally and emotionally.  
Be well-prepared to apply for university studies.  
WizeUP!

CLICK  
CONNECT  
STEP UP

View the JuniorTukkie magazine online:  
[www.up.ac.za/juniortukkie](http://www.up.ac.za/juniortukkie) > JT magazine

Project manager, editor and writer:  
**Anthea Pretorius**  
[anthea.pretorius@up.ac.za](mailto:anthea.pretorius@up.ac.za)

Proofreader:  
**Martie Kilian**  
[martie.kilian@up.ac.za](mailto:martie.kilian@up.ac.za)

Editing by the UP Language Unit:  
**Dr Helena Kruger-Roux**  
[helena.kruger-roux@up.ac.za](mailto:helena.kruger-roux@up.ac.za)

Design and layout:  
**Dreamwave Design Solutions**  
[info@dreamwavedesign.co.za](mailto:info@dreamwavedesign.co.za)

**Disclaimer:** This publication contains information about regulations, policies, tuition fees, curricula and programmes of the University of Pretoria applicable at the time of printing. Amendments to or updating of the information in this publication may be affected from time to time without prior notification. The accuracy, correctness or validity of the information contained in this publication is therefore not guaranteed by the University at any given time and is always subject to verification. The user is kindly requested to verify the correctness of the published information with the University at all times. Failure to do so will not give rise to any claim or action of any nature against the University by any party whatsoever.

# Editorials



## Blended learning: Associated observations and life lessons

As I put pen to paper, I cannot help but reflect that which I thought and hoped was only going to be with us for a few months, has now been with us for almost two years. The continued existence of COVID-19 in our midst has created a new normal, especially in the teaching and learning space.

My daughter, Koketso Manchidi, wrote matric last year and her experience was hugely different when compared with those who wrote matric in 2019. It was in March of her matric year that the country went into the first lockdown restrictions, forcing the closure of academic institutions alongside many other places. Due to the closing of schools, much of her learning was a combination of in-person, physical class attendance and a lot of remote, online learning. This combination is commonly referred to as blended learning.

Koketso, who is now studying at the University of Pretoria, had, like many others, a tough time adjusting to the new way of learning. While I am mindful that there are things that COVID-19 has taken away from her matric and first year university experiences, I reflect on my observations of Koketso during this time of blended learning to highlight possible life lessons.

My first observation was a shift from a teacher-led to a learner-led learning. I have never seen my daughter less dependent on her teachers, which, in a way, was a great development for her own growth. To succeed she had to take greater charge of her learning. She gathered many online resources and even participated in other online discussions outside of her school, because she realised that her matric was at stake. Speaking to her this year, I realise that this trend continued into her first year at UP. I have no doubt that many others have experienced something similar. This is an important life lesson and skill—we all need to take charge and ownership of our own destinies and lead ourselves towards our aspirations!

My second observation is that of Koketso's flexibility and adaptability.

As difficult as it has been, Koketso had no choice but to adapt to this new and constantly-changing way of learning. At some point, I saw her take a 'sink or swim' approach—it was either adapt or be left behind. To my relief as a parent, she adapted choosing to swim rather than sink. This is, again, an important life lesson and a valuable skill—a stable tomorrow is never guaranteed. To survive in the new normal, characterised by blended learning and other constant changes, one has to be flexible enough to adapt. Rigidity and being 'married to old ways' definitely have no place in this new landscape, as you run the risk of being overtaken or, at worst, driven over.

My third and final observation was my daughter's resilience and resourcefulness. One never realises how resilient people are until they are put to the test. I sensed in many of the conversations with Koketso that she was often knocked down by COVID-19 associated restrictions, fears and challenges. I was encouraged though, by how, albeit with some degree of difficulty, she bounced back—embracing the new normal and reality around her. I have no doubt she has had to dig deep to get herself looking up again. This is a key life lesson, never to allow anything to get us permanently down. We have to find ways of working around our realities, within which change will be the only consistent feature.

Given that we are encouraged not to waste a good crisis, I hope that my observations of my daughter have given you something to work with for your own personal growth.

Best wishes,

**Mr Setlogane Manchidi**  
Head: Corporate Social Investment,  
Investec



## jTOnline

COVID-19 changed our lives, our ways of communicating, and most importantly, our ways of teaching and learning. The education cohort adopted hybrid learning, but it is essential that we do not focus on hybrid learning, but that we adopt a blended learning style.

We worked in silos for too long. Everyone was doing their own thing. The future of our education lies in the model the JuniorTukkie initiative adopted to assist learners and teachers with hybrid learning. jTOnline introduces students to new content and concepts through online materials, and they are then brought together via online events to review and ask questions. I believe if teachers and learners use the blended learning model, using the content of jTOnline, this is blended learning and a must for our future.

When the COVID-19 pandemic is behind us and gathering in person for learning is once more a practical option, I hope that all teachers and learners will benefit from both teaching methods. It is of utmost importance that online and person-to-person teaching complement us and facilitate a successful transition from high school to higher education. Please use our jTOnline platform and join us at JuniorTukkie.

May 2022 be a much better year, and may we get back to normal. Use every opportunity to achieve your dreams.

**Dr Petrus Lombard**  
Project Manager: JuniorTukkie



# Be the author of your unfolding story

By Anthea Pretorius

‘Sometimes, you might have to let go of the life you thought you wanted in order to make room for the life you are truly meant for.’ (Nikki Banas)

Do you realise that you have the power to shape your future? That your current circumstances are not set in stone? Do you want to be part of something big that will impact the future? Do you want to affect positive change for your family, friends, community and country? You can!

You can do so by being intentional about a range of decisions you make daily. You are equipped with gifts the world needs. You can make a far bigger impact

than you realise. Bring what you have now and add to that every day. Join the positive revolution of change that is sweeping the world.

We all have the ability to conquer, so I encourage you to heed what the people below are writing. We have so much we can learn from each other.

This is the advice the sociologist, historian and activist, **W. E. B. Du Bois**, gave to his daughter, ‘The main thing is

the YOU beneath the clothes and skin, the ability to do, the will to conquer, the determination to understand and know this great, wonderful, curious world. Don't shrink from new experiences and customs. Enjoy what is and not pine for what is not. Read some good, heavy, serious books just for discipline: Take yourself in hand and master yourself. Make yourself do unpleasant things to gain the upper hand of your soul.’

Source: The Correspondence of W. E. B. Du Bois

## The Next You: The Art of Futuremaking<sup>1</sup> with Cassandra Vieten

‘The future is not some place we are going to, but one we are creating. The paths are not to be found but made. The activity of making them changes both the makers and their destinations.’

(John Scharr)

The COVID-19 pandemic has undoubtedly been challenging to all of us. Some feel disconnected and disheartened. Others feel that their lives have been thrown off course, and they are floundering.

The truth is that, despite the pandemic, we all have the opportunity to reorient ourselves, to think about what we want to achieve and how to go about doing so. Every day we are actually walking to meet our future self.

We should reflect on the potential within us; the dreams that live in our hearts; how we can be intentional about engaging, about enjoying every embodied experience and the opportunity to invest in robust relationships that will support the direction our lives are taking.

1. *Living Deeply: The Art and Science of Transformation in Everyday Life Spiritual and Religious Competencies in Clinical Practice*, by Marilyn Schlitz, Cassandra Vieten, Tina Amorok, Robert Thurman and Linda Lee Ratto.



## Editorials

### Resilience in difficult times

It serves no purpose to distract yourself, to deny reality or to avoid making sensible decisions. Resilience is far more than an ability to bounce back after enduring either a stressful event or a difficult season in our lives.

The Webster Dictionary defines resilience as 'an ability to recover from or adjust easily to misfortune or change,' but I prefer the definition I found for resilience on the HeartMath website ([www.heartmath.org](http://www.heartmath.org)). They say, 'Resilience is the *capacity to prepare for*, recover from and adapt in the face of stress, adversity, trauma, or tragedy.'

Did you notice the word 'capacity' and the phrase, 'prepare for?' One could safely say that resilience is affected by the amount of energy we have in our internal (physical, mental and emotional) batteries in many instances. It also means that we must take responsibility to ensure that these energies are maintained and sustained.

An essential skill for learners and students is self-regulation. What this means is that you must know your limits. You must know what needs to happen to ensure that you are functioning in an optimal state and take care of your own

well-being. The better you self-regulate, the better you cope, the faster you recover, the more creative and energised you feel.

We are wise when we learn how to accumulate resilience energy, how best we can process stress-related emotions, maintain our composure even under pressure, remain calm and rational, and make time to infuse joy, exercise, and exercise fun into our lives.

**Ultimately the more balanced we are, the better we function.**

### What is the state of your energetic field?

If you have ever been in the company of someone who is constantly angry, dissatisfied, ungrateful, critical, full of complaints, aggressive or uncooperative, you will know how that drains you. We need to monitor ourselves, too, because our attitudes, thoughts, emotions, and behaviours emit specific energetic fields. Those vibrations impact all of our relationships, the environment, and the circles in which we move.

Positive energy fields are created by every sincere and genuine intention to be loving, compassionate, and tolerant with people and express gratitude and appreciation often. This heartfelt attitude results in personal coherence, and because your body, mind, emotions and spirit are in harmony, you are far healthier and connected.

The electromagnetic field around your heart is incredibly powerful. To achieve a positive heart-coherent state is within our power. It will create the field and circumstances we desire. Before a class or a meeting or an interaction with your family or communicating with your friends, take a few moments to become quiet and centre on your heart. See yourself maintaining your composure. See yourself rejecting the urge to judge, to criticise, to become upset or annoyed. Send love and positive energy into that interaction in advance. You will be surprised at the outcome!

Sara Childre, the President of HeartMath Institute, writes,

**'Hope is driven by the *qualities of the heart*: appreciation, happiness, care and compassion. These qualities are strengthened by spiritual practices like meditation, prayer and by heart connections with others. Heart-based living nurtures us mentally, emotionally, physically and spiritually. By practising genuine appreciation for everything and by generating positive feelings before, during and after your activities and encounters increases the texture and richness of your life experiences.'**



She also advises, 'Listen to your heart for solutions.'

A smooth heart rhythm results in greater heart-brain coherence, which improves cognitive ability, and aids the efficient, harmonious functioning of cardiovascular, nervous, hormonal and immune systems, replacing feelings of separation with connection. Higher cortical functions are enhanced, enabling greater objectivity and intuitive perception.'

Of the opposite, incoherence, she writes, 'Stress, overwhelm, anxiety, uncertainty and fear send chaotic and incoherent signals to the brain/mind, inhibiting higher cortical functions and trigger stressful responses. The heart and brain are no longer in sync, and solutions to personal and global problems elude us. Negative emotions register in your magnetic field, generating an incoherence wave.'

Learn more at HMI coherence research ([www.heartmath.org/resources/downloads/science-of-the-heart/](http://www.heartmath.org/resources/downloads/science-of-the-heart/)).

## Editorials

### Insights offered by Sharon Salzberg

Salzburg writes, 'Many of us feel very fragmented, and we need tools and practices that send us back to ourselves.'

In her book, *Real Change*, she writes: 'We practice mindfulness in order to cultivate a sense of agency, to understand that a range of responses is open to us. We practice to remember to breathe, to have the space in the midst of adversity to remember our values, what we really care about, and to find support in our inner strength and in one another.'

'Your mind is naturally radiant and pure. Your mind is shining. You suffer because of visiting forces like—greed, hatred, jealousy, fear. This is not inherently, intrinsically who you are, but these emotions visit us. In some traditions, they say, invite that visitor in for a meal. Don't let it have the run of the house because that's dangerous, but feel the pain these emotions bring, rather than feeling disgraced by them.'

#### Salzburg refers to five mind states

Salzburg explains that 'these mind states are called hindrances, which we often get lost in; they tend to give us tunnel-vision and cut off our options and imprison us, in some way.'

The first mind state is **attachment**; we are grasping or holding on, really clinging and almost refusing to let things or people or ourselves change.

**Aversion** is the second mind state. It is anger or fear, which are just different forms of aversion— anger being the expressive, outflowing, energised form, and fear being the held in, frozen, imploding form of striking out against what's happening, trying to declare it to be untrue.

The third mind state is **sleepiness**, which is really a kind of numbness. When you face a challenge, your first instinct may be to take a nap or wrap yourself in this cloak of oblivion, not to have to feel so much.

The fourth mindstate is the energetic *opposite* of sleepiness, which is **restlessness**, which manifests as agitation, anxiety, guilt and worry.

The last mind state is **doubt**. When we find ourselves always insisting on things, or not believing others, or always questioning and wondering about things, we may suffer from perpetual doubt. Cynicism, a critical spirit or scoffing at the views of others, may also be manifestations of a

doubtful demeanour, which ultimately is not that helpful.'

Salzburg goes on to say,

'Some things just hurt, but we need the energy to be present, to be with the pain, to find the space in the pain. Your awareness is bigger than the visitor. Find a space where you can live, rather than being caught up in the presence of the visitor. Allow her in, and give her a meal. With mindfulness, we can really be with things in a very, very different way.'

#### Contact information

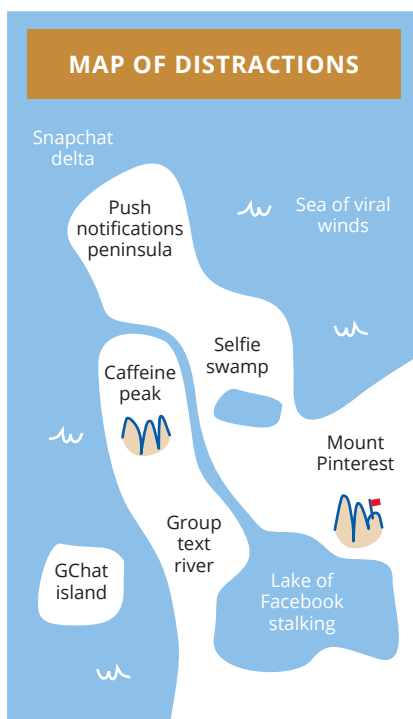
**Website** [www.sharonsalzberg.com](http://www.sharonsalzberg.com)

#### Sharon Salzberg's book:

*Real Change: Mindfulness to heal ourselves and the world.*

#### On Being interview:

[www.onbeing.org/programs/sharon-salzberg-the-healing-is-in-the-return](http://www.onbeing.org/programs/sharon-salzberg-the-healing-is-in-the-return)



### Dealing with distractions

Professor Katy Milkman (University of Pennsylvania), wrote a book entitled '*How to Change*.' In it, she offers practical strategies to deal with distractions and how to become more productive. Milkman writes, 'Making hard things seem fun is a much better strategy than making hard things seem important.'

One clever solution she offers to distraction is 'temptation bundling, which entails allowing yourself to engage in a guilty pleasure (such as binge-watching TV) only when pursuing a virtuous or valuable activity that you tend to dread (such as exercise).'

Another she mentions is the implementation of intentions, which means making a plan to achieve your goals by linking them to a specific cue that will remind you to act. Peer pressure is real and can be both good and bad. Hanging out with the right people can spur you to greatness.

### Pay attention to your tapestry

Dr Tasha Eurich writes,

'Humans are like intricate tapestries, woven together by the multi-coloured threads of our experiences, identities, and relationships. When you think about *your* tapestry, what strands stand out as the biggest forces for meaning and happiness in your life?'

'The pandemic has ripped many threads from our lives. Some we never imagined would be ripped out. It could have happened on a professional or personal level. Some threads were big; others were small. Some threads might have been temporary, but in some instances, a thread was ripped away that was permanent. But even so, I wish you peace in the impermanence.'

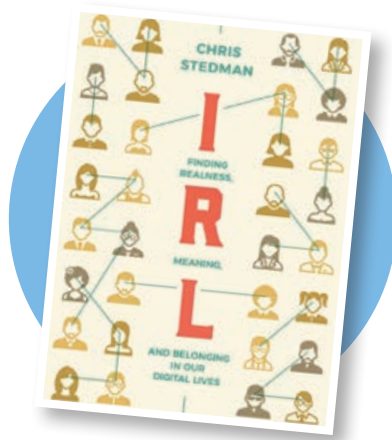


## Editorials

### How to feel like a human online by Chris Stedman

'What does it mean to be "real" in the age of deepfakes? Online realness is not digital boasts and brags to which we have all grown accustomed.' Stedman admits, 'I felt split between a fractured self and my digital composite. I found novel ways of being human emerging online. At the end of 2019, I published *IRL—Finding Realness, Meaning, and Belonging in Our Digital Lives*. I wrote the book to make sense of the tension I felt in my own online humanity. We need to treat digital life as a space rife with opportunity. The online world contains just as much possibility for real, meaningful connection as life offline.'

2020 hasn't been easy for anyone. In a time of necessary social distancing, it's easy to feel alone and look at digital life as a poor substitute for the 'real-life,' offline comforts that the pandemic has made rare.'



Chris Stedman teaches in the Department of Religion and Philosophy at the Augsburg University in Minneapolis, Minnesota. Broadleaf Books published his book *IRL, Finding Realness, Meaning, and Belonging in Our Digital Lives*.

### Connection: How to find the life you are looking for in the life you have by Dr Kristine Klussman

Dr Kristine Klussman is a Harvard-trained psychology researcher, clinician, and she is the founder of the Purpose Project. In her book, *Connection: How to Find the Life You're Looking for in the Life You Have*, she writes, 'When I'm not right with myself or with the world, what's blocking that connection?'

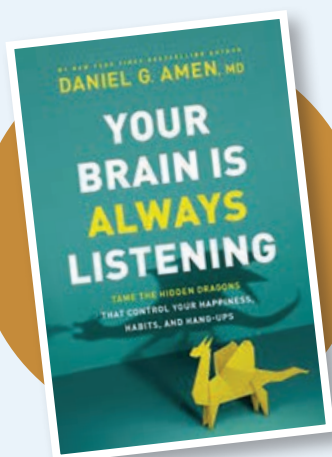
#### Be awake, aware, and intentional. Ask yourself:

- Are my actions aligned with my highest values and priorities?
- Am I numbing out by binge-watching TV or mindlessly scrolling?
- What am I avoiding?
- When do I zone out?
- What lights me up?
- What do I care about?
- What am I here to do?
- What are my greatest gifts to give?
- What is my ideal vision for myself?
- What is my calling in life?
- What is trying to emerge?
- How can I show up to that next level?

Create space and let go of the things that have served their purpose and are no longer serving. Tune into all kinds of micro-moments of meaning and connection with others. There's meaning everywhere. Reframe the pandemic experience. See the possibilities.

**Source:** [www.resources.soundstrue.com/podcast/are-you-feeling-connected-right-now/](http://www.resources.soundstrue.com/podcast/are-you-feeling-connected-right-now/)

### Is your brain listening to Anxious Dragons? by Dr Daniel Amen



'When you tame your 'anxious dragons', you can overcome anxiety, panic, and irrational fears, so you can start feeling better and living the life you want.'

#### Why are we so anxious?

'Anxious dragons' breathe fire on the emotional centres of your brain, causing you to feel nervous, fearful, tense, or out of control. Your brain is always listening to these 'dragons', and unless you recognise and tame them, they will steal your happiness.

When 'anxious dragons' take control of your brain, it can contribute to anxiety, panic attacks, irrational fears, chronic stress, phobias, conflict avoidance, a tendency to predict the worst, sensitivity to rejection, and physical symptoms like headaches and stomach aches.

In some people, the deep desire to escape these uncomfortable feelings can lead to self-destructive behaviours, such as drinking or using drugs.

Many things can trigger the 'anxious dragons' and make you feel nervous, panicky, or tense. Knowing your triggers is one of the keys to learning how to tame your 'anxious dragons'. You can overcome anxiety, panic, and irrational fears, so you can live the life you want.'

Dr Daniel G. Amen is the founder of Amen Clinics, a world leader in applying brain imaging science to help people struggling with emotional, cognitive, and behavioural challenges. He is a psychiatrist, neuroscientist, and he has written twelve bestsellers.

**Source:** *Is Your Brain Listening to Anxious Dragons?* Spirituality & Health ([www.spiritualityhealth.com](http://www.spiritualityhealth.com))









## News

# UP awards nine top-performing graduates for undergraduate excellence

By Xolani Mathibela

Nine UP students were recently awarded the Vice-Chancellor and Principal's medal for maintaining an excellent average throughout their undergraduate studies. The medals were awarded to them during this year's autumn virtual graduation ceremonies.

The award includes an amount of R3 000, a certificate signed by Vice-Chancellor and Principal, Professor Tawana Kupe, and a medal engraved with the student's details.

'Congratulations on working hard throughout your undergraduate years, and for maintaining excellent grades,' said Prof Kupe. 'The University is proud of your achievements; we hope you fly the UP flag high and become great ambassadors of this institution. We also hope that you come back to further your studies with UP.'



**Monica Manilal** of the Faculty of Economic and Management Sciences graduated with a BCom in Financial Sciences

and achieved a cumulative weighted average of 92,59% throughout her degree; she is pursuing a BCom (Hons) in Financial Management Sciences. 'I feel very proud and happy for being recognised by the Vice-Chancellor of UP,' she said.



**Jaco-Louis Venter** of the Faculty of Engineering, Built Environment and Information Technology graduated with a

BEng degree in Chemical Engineering and achieved a cumulative weighted average of 92,62% throughout his degree. He is doing a BEng (Hons) degree in Electronic Engineering, specialising in Process Control and Optimisation; he plans to continue with a master's degree next year. 'I see it as a great honour to receive this recognition for the hard work I have put in over the past four years,' said Venter. 'I also feel it is my responsibility to use my skills to contribute to our society.'



**Liandri Badenhorst** of the Faculty of Education graduated with a BEd (Senior Phase and Further Education and Training Teaching)

and achieved a cumulative weighted average of 88,03% throughout her degree. 'I am so grateful and excited about this award,' said Badenhorst, who is currently working as a teacher. 'I did not even know that such an award existed, let alone that I would be recognised for an award like this.'



**Casha-Mae Schoonraad** of the Faculty of Humanities graduated with a BA General degree and achieved a cumulative weighted

average of 90,54% throughout her studies. She is enrolled for a BA (Hons) degree in Criminology. 'It is a great honour to have been recognised by the VC of UP!' she exclaimed. 'I always try my best in all that I do, and the fact that I was successful encourages me to keep giving my best. This award makes all the long nights and endless hours of studying worth it.'



**Felix Schröder** of the Faculty of Law graduated with an LLB and achieved a cumulative weighted average of 81,73% throughout

his degree; he is studying towards a master's degree and is enrolled in the LLM International Law course. 'It feels really rewarding to have done well in my studies and I am proud of my achievement,' he said. 'I feel incredibly honoured to have been recognised by the Vice-Chancellor and I am grateful to have had the opportunity to study at UP.'



**James Murray Louw** of the Faculty of Natural and Agricultural Sciences graduated with a BSc degree in Mathematics and

achieved a cumulative weighted average of 97,14%; Louw is enrolled for a BSc (Hons) degree in Mathematics. 'It is a great privilege to be acknowledged by the VC for my academic achievements. Looking back at my undergraduate years, I realise there were a lot of hard times and weeks that I thought I would not make it through. But in the end, everything turned out amazingly. I want to glorify God who carried me through it all. He is my rock in hard times and working diligently on my academic studies is how I worship him for what he has given me.'

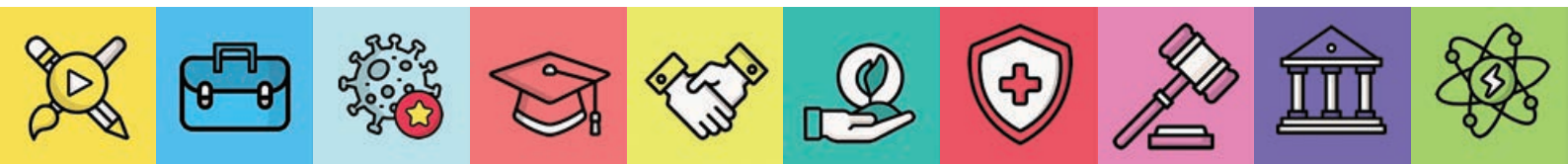


**Leigh Kairuz** of the Faculty of Veterinary Science graduated with a BVSc (Bachelor of Veterinary Science) degree and achieved a cumulative

weighted average of 84,72% throughout her degree; she is currently doing community service as well as furthering her studies, a diploma in Veterinary Clinical Sciences. 'It was a great deal of hard work, but worth it in the end,' said Kairuz. 'It is an honour to have been taught by and to have worked with the dedicated and passionate veterinarians and nurses at Onderstepoort. These six years have been an amazing journey with a special group of people who are now my colleagues. To be recognised by the Vice-Chancellor is an honour and a privilege.'

The following students also received the Vice-Chancellor and Principal's medal: Damien Joubert of the Faculty of Theology and Religion and Marlé Gräbe of the Faculty of Health Sciences.

## News



## Mail & Guardian and UP celebrate those who make a positive impact on society

By Anthea Pretorius

For the past 15 years, the *Mail & Guardian* has identified 200 young South Africans whose impact on society is tangible. In 2021, the newspaper received 5 300 nominations. Over these years, they have been convinced that the youth of South Africa is committed to making ours a better country.

The Gala Event was held on 24 June 2021. The 2021 theme was: **Resilience and Innovation for Excellence**. Nominees could indicate their impact in any of 14 categories and they range from civil society to health, with a special category for young

people who have saved and changed the lives of others during the COVID-19 pandemic. UP staff and students have served using their unique skill sets and networks.

Over the years, the University of Pretoria (UP) has had staff members, students and alumni featured on the list, furthering the University's aim to produce citizens who are not only suitably qualified, but also committed to using their skill sets in service of the communities they live and work in.



**Jolandi Jacobs**, who obtained a master's degree in physiotherapy in 2021, writes: 'UP has provided me with the knowledge and expertise to make an impact in the sports physiotherapy sector. I am very passionate about working with female athletes and empowering women in sports. Running Raspberries, which was founded in 2020 as a female running community, has as its goal the empowerment of women. We help them to achieve their fitness goals in a safe environment.'

I own a sports rehabilitation centre, called Sports Bodies, which was established in 2021. My areas of expertise include biomechanics, motion analysis, athlete management, and injury prevention.

I work as a women's sports researcher, focusing on women's cricket. My research goal is to promote injury-free participation in sports. This involves injury surveillance through the collection of injury data, adequate athlete management, and the implementation of injury prevention programmes. Another focus area is to bridge the research gap between male and female sports.

It is an honour to be nominated for the 2021 *Mail & Guardian* Young South African. This award, I believe, is a recognition of the small difference I have made in the sporting community, as well as a preview of what is to come in the future.'



**Daniel Ndima**, who completed the MSc Biochemistry degree in which he focused on the structural biology of infectious diseases, writes: 'I was trained by Prof Wolf-Dieter Schubert. My research project aimed to understand the infection life cycle of a pathogen called *Listeria monocytogenes* and it also included investigating the expansion of its host repertoire.'

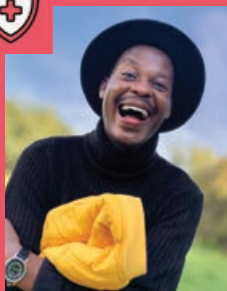
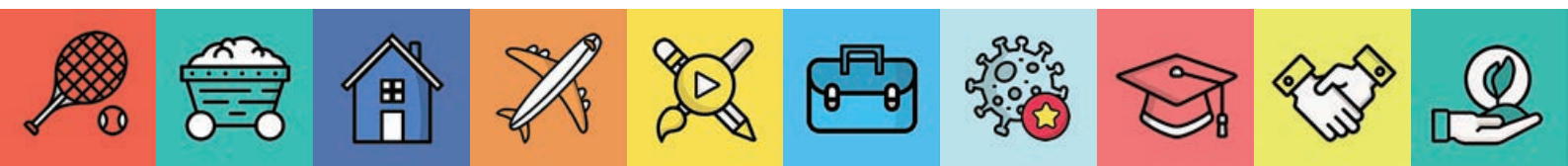
Understanding infection at atomic levels also involves the production and purification of virulent factors, which are the surface proteins that interact with human epithelial cell receptors. The process and strategies for production of these proteins at large scale are analogous to the production of commercial enzymes.

My company produces recombinant enzyme technologies for molecular research and diagnostics applications. What the master's degree at UP helped me with the most was the creation of protein variants that have either strong or weaker functions based on the active sites' structures and desired commercial outcomes.

The *Mail & Guardian* award under the Science and Technology category confirmed that I am on the right path in the industry. I chose this field with the intention of starting a biotech company and every step I took in doing so was unambiguous. The prestigious award meant that my expedition of creating innovative solutions that impact lives on the continent is noteworthy—and this inspired me to be courageous in my responsible bio-entrepreneurship journey.'



## News



Researcher and lecturer **Raikane J. Seretlo** was named in the health category. He graduated after achieving the three-year BCur I et A (Nursing Administration and Education) degree with distinction.

He writes, 'My bachelors degree at UP gave me a clear picture and indication of where my career is going. I discovered that my silent, inner voice was heard and recognised in the workplace. I discovered a love for lecturing and it became a driving passion. I applied to do a master's degree in public health and in 2022 I will commence with a PhD in nursing.'

I feel honoured and blessed to be nominated as one of the 2021 *Mail & Guardian* Young South Africans. I realised that while we are trying to live our best possible lives, we often do not realise that many people look up to us; see us as role models and this was a game-changer for me!

It is both a humbling and exciting realisation and carries a huge responsibility. This platform really showed me that all of us can be what we want to be, we just have to believe it is possible; do the hard work; put in an effort daily and, even though it won't be easy every day, with God and dedication, mentors on our side, it can be achieved. Nothing is impossible, regardless of your background, ethnicity, gender, economic status or age. Never stop empowering yourself, collaborate with others because no man is an achiever of great heights solo. Never compare yourself to anyone else. Your journey is unique and special.'



**Brandon Ferlito**, who is working as a health care bioethicist and who is also registered for the Postgraduate Diploma in Public Health, was delighted by the nomination.

He writes, 'I constantly advance myself through continuous education and learning. The Postgraduate Diploma in Public Health at UP allows me to increase my knowledge of public health while enhancing my soft skills, and the programme also boosts my confidence to succeed in the industry. This is an online programme, so it allows me to strengthen my time management skills and it is enhancing my work ethic. I cannot wait to complete my studies in 2022. Thereafter, I shall continue to use the skills I have acquired in my undergraduate and postgraduate education to make a meaningful contribution to the health care sector of South Africa.'

I am honoured to have been selected as a 2021 *Mail & Guardian* Young South African. Being recognised for my accomplishments and contributions as a young person is wonderful. This year's theme, 'Resilience and Innovation for Excellence', is particularly meaningful to me, because I had to overcome a number of challenges to get to this point in my life. As a finalist, I am elated to be among a group of eminent and accomplished young people who strive to positively make an impact in South Africa.'

### Other individuals who were also nominated include:

- social work master's student **Lisette Oelofse**, who was named in the Civil Society category;
- **Dr Vukosi Marivate**, who is the principal investigator at the Data Science for Social Impact Research Group (DSFSI) at UP, and who appeared in the COVID-19 Heroes Editor's Choice category in 2020;
- **Dr Taryn Bond-Barnard**, senior lecturer and researcher, who was nominated in the Education category in 2019; and
- former Student Representative Council President **David Kabwa**, who appeared in the Politics and Government category in 2020.



UP Vice-Chancellor and Principal Professor Tawana Kupe said, 'It is important that we celebrate and commend young people who are making a difference because our collective development as a society lies in the hands of the youth—they are the future. South Africa's institutions of higher learning are important spaces for the preparation of each new generation of trailblazing innovators and leaders. At UP, we empower our students and staff through high-quality education and cutting-edge research that makes a positive transformative impact. At UP, we use knowledge and human capital to change the situation on the ground.'

## News

# Excellent students go beyond and above!

By Pieter Clase and Martie Kilian

At the University of Pretoria (UP), we nurture excellence. We believe that by providing an excellent learning environment for our students, we will produce worthy achievers who are well prepared to excel in their work environments nationally and internationally after completing their studies.

Over the years, the Department of Enrolment and Student Administration (DESA) at the University identified and monitored the academic progress of selected groups of students. We refer to them as *excellence groups*. DESA introduced various interventions to support and motivate them while studying at UP, and beyond. These interventions include relationship-building programmes for school learners and academic and emotional support on campus, financial aid, enrichment programmes, membership of UP student bodies, study groups for UP students, etc.

The graphic representation below illustrates the success of this initiative and the individual achievements of the members of the respective excellence groups. We salute the students who already outperformed themselves in various academic fields.



## What is FLY@UP?

FLY stands for: the Finish Line is Yours. The FLY@UP campaign supports and encourages UP students to graduate in the minimum allocated time.

### Vice-Chancellor Distinguished Merit Award 2016-2021 first-years

A number of first-year students are offered the Vice-Chancellor Distinguished Merit Award (VCDMA) based on the student's final school year end examination results. This offer includes the opportunity to become part of the VC's distinguished student group and the unique honour to receive the three-year VCDMA.

50

**83,33% FLY@UP**

As a percentage of completed undergraduate degrees

315

**COHORT**

The total number of delegates/award recipients in this group over the years as indicated above.

#### Active degrees

Doctoral	0
Master's	3
Honours	29
Undergraduate	249



#### Completed degrees

Doctoral	0
Master's	2
Honours	24
Undergraduate	60

### VC Special Previously Disadvantaged Award 2011-2021 first-years

The target group for this award is top Black and Coloured students with an APS of 35 or higher (only ZAF students and have not been offered a VCDMA).

816

**61,96% FLY@UP**

As a percentage of completed undergraduate degrees

2 976

**COHORT**

The total number of delegates/award recipients in this group over the years as indicated above.

#### Active degrees

Doctoral	3
Master's	65
Honours	101
Undergraduate	1 199



#### Completed degrees

Doctoral	1
Master's	35
Honours	401
Undergraduate	1 317

‘Discipline is the bridge between goals and accomplishments’.

(Jim Rohn)



## News

## JuniorTukkie members

2010-2020 JTs (2011-2021 first-years)

Learners from Grade 9 to 12 may register for JuniorTukkie membership. Grade 12 JT members are monitored and determined which JT members registered for studies at UP.

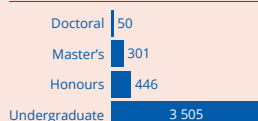
**3 790**

**69,02% FLY@UP**  
As a percentage of completed undergraduate degrees

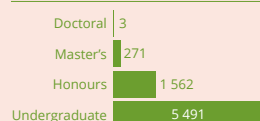
**10 063**

**COHORT**  
The total number of delegates/award recipients in this group over the years as indicated above.

## Active degrees



## Completed degrees



## UP School Leaders Conference

2016-2019 (2018-2021 first-years)

Newly elected head prefects (Head Boys/Head Girls) of selected schools are invited to the annual UP School Leaders Conference. They attend this Conference in their Grade 11 school year (in the year preceding their leadership year).

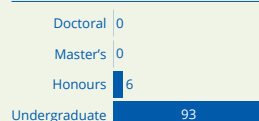
**9**

**100% FLY@UP**  
As a percentage of completed undergraduate degrees

**108**

**COHORT**  
The total number of delegates/award recipients in this group over the years as indicated above.

## Active degrees



## Completed degrees



## JuniorTukkie Grade 12 Preparation Conference

2009-2020 (2010-2021 first-years)

Learners in Grade 12 who have been conditionally admitted/admitted to study at UP, are invited to this annual JuniorTukkie Grade 12 Preparation Conference.

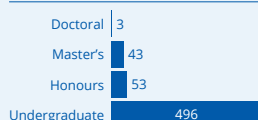
**565**

**69,58% FLY@UP**  
As a percentage of completed undergraduate degrees

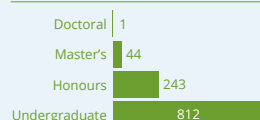
**1 517**

**COHORT**  
The total number of delegates/award recipients in this group over the years as indicated above.

## Active degrees



## Completed degrees



## Dux learner Award

2008-2021 first-years

Learners who received the Dux Award in their final school year from their school, will receive UP's Dux learner Award on condition that they registered for studies at UP.

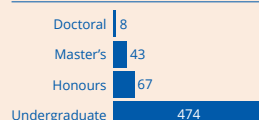
**621**

**80,23% FLY@UP**  
As a percentage of completed undergraduate degrees

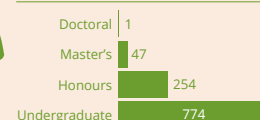
**1 324**

**COHORT**  
The total number of delegates/award recipients in this group over the years as indicated above.

## Active degrees



## Completed degrees



## JT Grade 11 Empowerment Week Attendees

2007-2019 JTs (2009-2021 first-years)

JuniorTukkie members in Grade 11 (with a minimum of 60% in Mathematics and Physical Sciences) are invited to attend the JT Grade 11 Empowerment Week.

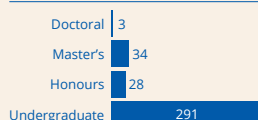
**234**

**58,65% FLY@UP**  
As a percentage of completed undergraduate degrees

**828**

**COHORT**  
The total number of delegates/award recipients in this group over the years as indicated above.

## Active degrees



## Completed degrees



## JT Grade 11 Empowerment Week Awards

2009-2019 JTs (2011-2021 first-years)

JuniorTukkie members who attended the Grade 11 Empowerment Week, who registered for studies at the University of Pretoria, are taken into consideration for the Empowerment Week Award—based on the results with which they apply to study at UP.

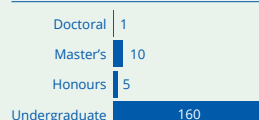
**84**

**69,42% FLY@UP**  
As a percentage of completed undergraduate degrees

**329**

**COHORT**  
The total number of delegates/award recipients in this group over the years as indicated above.

## Active degrees



## Completed degrees



## Inspiration

# Are you suffering from COVID-related trauma?

By Becky Garrison

Make no mistake, a pandemic is traumatic, and the way we respond to trauma and our ability to process it will determine whether or not the pandemic has lasting and long-term effects on our system. Many people are complaining of feeling exhausted and depleted, or more anxious than usual.

## The six signs of COVID-related trauma are:



### Overwhelm

You find yourself experiencing panic, dissociation and dread. Your reaction to external stimuli is outsized.



### Distraction

You find it difficult to concentrate and focus on work and you may feel numb, disoriented or lethargic. Even once enjoyable events have become unappealing.



### Hypervigilance

You find yourself on high alert all the time and experience fatigue from risk assessment decision-making. Your life becomes smaller as you minimize people and situations that you fear may cause you danger or stress.



### Trauma bonding

You may find it a challenge to talk or think about anything else than the pandemic.



### Doomscrolling

You fixate on the news and your social media feeds, leading to a skewed understanding of the world with a disproportionate representation of suffering relative to your life.



### Unhealthy comfort

Your consumption of food, alcohol or other substances may have changed, and you might engage in different behaviours because you no longer feel in control.

## Spiritual practices to help mitigate the effects of COVID trauma

Alyssa Siegel<sup>1</sup>, a licensed mental health therapist from Portland, Oregon states, 'While the pandemic made us all feel very isolated and very vulnerable, you need to connect to people in deep and meaningful ways in order to mitigate some of the trauma caused by the pandemic.' She suggests the following practices: yoga, meditation, journaling,

drumming, dancing, starting a vegetable garden, cooking healthy, nutritious food, drawing, and outdoor activities like hiking, which will 'give our nervous system a chance to reset and to feel safe again. Over time, this builds the resilience needed not just to endure but to grow during high-stress periods.'

Read the full article here: [www.spiritualityhealth.com/6-signs-you-may-have-covid-trauma](http://www.spiritualityhealth.com/6-signs-you-may-have-covid-trauma)

<sup>1</sup> [www.portlandsexandrelationshiptherapy.com](http://www.portlandsexandrelationshiptherapy.com)

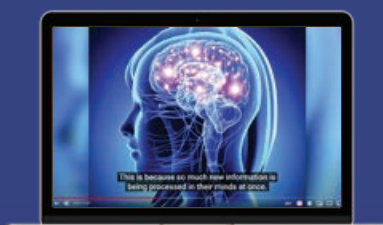


## Inspiration

- 1 They are playful yet disciplined (ie they are able to persevere and focus)
- 2 They are intro- and extroverted (ie ambiverts that can be sociable and quiet)
- 3 They are realistic dreamers
- 4 Their mind never slows down
- 5 They follow their passions and are actively involved in worthy endeavours
- 6 They are objective about their work
- 7 They have difficulty staying on task and sometimes battle to focus on one thing
- 8 They use procrastination as a tool

# 19 traits of highly CREATIVE people

- 9 They lose track of time when they are in the zone or so-called "flow state"
- 10 They are readers, deep thinkers, and intelligent
- 11 They are conservative, yet also rebellious, out of the box thinkers
- 12 They can be conventional or unconventional
- 13 They are highly sensitive and often misunderstood
- 14 Their emotions change constantly
- 15 They need a creative space to call their own
- 16 They turn life's obstacles around and use trauma to grow
- 17 They only work when they feel like it and have a strong independent streak
- 18 They sacrifice a stable life and often do not follow a set path as others do; they follow their inspiration
- 19 **THEY NEVER GIVE UP**



Watch the YouTube video here:  
[www.youtube.com/watch?v=QKO378GDi64](https://www.youtube.com/watch?v=QKO378GDi64)

## Inspiration



## EMOTIONAL DETOX

# 7 STEPS

to release toxicity  
and energise joy

By Sherianna Boyle

In her book, Boyle writes, 'If you cleanse fear, insecurity, and doubt from your mind, you can create the life you desire and deserve. Emotional detox is a reflective process that helps rewrite your negative stories, thoughts, and beliefs attached to your emotions. An emotional detox leaves you feeling energised, clear, and fulfilled. It cleanses the pathway for new habits and behaviours and lays the groundwork for connection, happiness, and love.'

### You might need a detox if you:

- are easily distracted;
- worry about or feel fearful of the future;
- lost or gained weight;
- binge eat or eat too little;
- are financially insecure;
- are lying to yourself or others;
- are avoiding certain people or places;
- are spending too much time alone;
- are ignoring your gut feelings;
- are feeling overwhelmed;
- are considering or having an affair;
- are drinking or doing drugs to escape the pressures in life;
- are focusing on the past more than the present;
- have trouble speaking up for yourself;
- have self-doubt or are second-guessing your choices;
- are feeling stuck or out of balance;
- are easily swayed by the opinion of others;
- are comparing yourself to others or not feeling good enough; and
- are feeling like you work hard, but nothing changes.

### Physical symptoms may include

- trouble sleeping,
- chronic tension,
- headaches,
- allergies,
- illness or pain,
- depression, and
- anxiety.

Emotional detoxes encourage us to release old ways of being—trying, waiting, pleasing, and avoiding, instead of waking up to reality.

### What are we detoxing?

**Resistance:** When we resist, we lose energy. Symptoms of resistance include:

- tightness in the chest,
- feeling guarded,
- holding your breath,
- clogging of the throat,
- chronic stress,
- backache,
- neck and shoulder tension,
- shallow breathing, and
- wide eyes.

**Emotional attachments:** Signs of emotional attachments include:

- people-pleasing,
- over empathising,
- a constant need for reassurance,
- highly charged by solid emotions (eg hatred),

- trying to be perfect, and
- approval-seeking behaviour.

Here are some things you can look forward to resolving:

- putting others before yourself,
- feeling like you are a burden,
- co-dependency,
- thoughts of unworthiness,
- emotional debt,
- fear of loss,
- believe you are broken or ill,
- feelings of abandonment, and
- fear of being judged.

**Avoiding:** When you avoid people, conversations, or conflict through behaviour such as ignoring, gossiping, distancing, drinking, texting, and shopping, your emotions become overprocessed. Pushing and preventing leads to building energetic barriers inside us.

Other ways in which people avoid (overprocess) their feelings include:

- complaining,
- being sarcastic,
- constantly trying,
- worrying,
- expecting others to know what they want and need,
- arguing or defending,
- rehashing the past,
- being excessively busy, and
- keeping score with a 'What have you done for me lately?' attitude.



## Inspiration

### The seven steps of an emotional detox

1

#### CLEAR

We remove thoughts, fears, and behaviour, and we notice sensations. That is why clearing is the first step in the cleansing formula. Take note of what transpires when you are in a state of reactivity. Concentrate on your body language, thoughts, stories, and most of all, your breathing.

Low level of reactivity	Medium level of reactivity	High level of reactivity
Your outlook on life becomes positive.	You are calm but more interested in what is going on around you than inside.	You have irrational thoughts, including words like nobody, everyone, should, you, and can't.
You focus on the bigger picture rather than getting involved in the details. Even when slightly annoyed or offended, you stay on task.	You are forgetful and distracted and wander off task. You feel tired, frustrated, and/or drained by day-to-day annoyances.	You are unable to stay on task and forget appointments and birthdays. You call in sick to work or consider impulsive 'outs' like quitting your job or ending your marriage.
When you are aware that you are not in the moment, you find ways to redirect yourself (eg deep breathing).	You are fluctuating between the past, present, and future. You find yourself thinking about the same things over and over.	You are fearful of the future and stuck in the past.
You use 'I' messages (I feel). You are uninterested in reactivity and interested in digesting and expressing all your emotions.	You don't use 'I' messages. You are negative, and vent and complain.	You find fault with others or yourself, but do not express your feelings. You try to protect other people's feelings through behaviour like people-pleasing but ignore your feelings.
You take care of yourself (eg exercise, eat well, get enough sleep). You notice your body, its levels of reactivity and follow the CLEANSING steps.	You are in two minds about taking care of yourself.	Taking care of yourself comes with too much guilt to even try. You neglect nutrition and exercise and ignore bodily signals (even exhaustion and dehydration).

2

#### LOOK INWARD

Your ego gets you to lick your wounds and focus on your fear and pain. On the other hand, your soul allows you to relish in your strengths, appreciate the healing taking place, and accept the delivered wisdom. Notice sensations like trembling or tightness. They are how the body attempts to reset the nervous system.

Make the most of exhaling: How you exhale shows your body that you are choosing to give yourself a break, relax, and recalibrate. A long, slow, mindful exhale creates a stronger movement of energy (emotions), giving you the means to release reactivity.

3

#### EMIT

Everything you ingest—every thought becomes liquefied into forms of energy. Harmful thoughts tend to be lower in vibration, which makes them more challenging to digest. Having a tight jaw is like placing a clamp on your emotional flow, affecting how you

communicate with yourself and others. Your jaw affects your throat energy centre. Blocking this bridge through tense, constricted energy is what gets you to speak with reactivity and criticism.

Our voices are more engaged when we speak from our centre, keeping us connected with the present moment. Soften your gaze. Soften your heart.

4

#### ACTIVATE JOY

Joy is a cleaner. Its energetic frequency is capable of cleansing and breaking old patterns. Think of joy as an active eraser. So many of us trade fun, laughter, and light-heartedness for responsibilities, worries, and obligations.

5

#### NOURISH

Imago therapy teaches that nobody feels safe if everyone feels defensive, which disrupts our ability to connect. Show appreciation. Nourish yourself in meaningful ways.

6

#### SURRENDER

Imagine yourself zooming in on what you would like to create in your life.

7

#### EASE

This step addresses trust. Building trust takes three key ingredients: vulnerability (feeling), boundaries, and compassion. It isn't easy to be socially aware without limitations. We risk misinterpreting the energy we feel. To thrive, you need connection, hugs, kisses, emotional flow, and feeling grounded and safe.

**Simplify your life. Focus on what truly matters.**

Become closer to your natural state of joy. The new warrior is soft, subtle, gradual, respectful, and intentional. It embodies a deep sense of courage and trust that you already have everything you need.

## Inspiration

# How *Moja Gabedi*, an urban garden, is transforming a neighbourhood

By Anthea Pretorius



Gernia van Niekerk in die Moja Gabedi gardens with UP students who volunteer their time and expertise.



The University of Pretoria's Unit for Community Engagement has transformed a dumpsite in Pretoria into a lush garden filled with flowing canals, vegetables, fruit trees and artworks, as well as an on-site counselling and free therapy service.

For nearly a century, Moja Gabedi was an unofficial rubbish dump, the size of three football fields, located in Festival Street near the Hatfield Campus.

The unit of Community Engagement began by clearing the site above ground. The first group of agricultural students that arrived discovered four metres of rubbish under the soil that had to be cleared first. Ultimately, UP removed 3 000 tons of rubbish.

The water drainage problems were solved by engineering and architecture students through the installation of canals that transport water to a dam, where the water is circulated once a week with a pump.

UP then provided 3 000 tons of topsoil and 200 tons of compost to kick-start the project. 120 fruit trees were planted with the help of numerous UP students in the Faculty of Engineering, Built Environment and IT doing their compulsory 40-hour community service for their Community-based project module (JCP), and Moja Gabedi started to take shape as an urban garden for the community.

Near Moja Gabedi is a shelter for homeless men called Reliable House. These men are now receiving treatment on site, and they are being trained to work in the garden and can grow their own vegetables.

UP students have manufactured several pieces of wooden furniture for the coffee shop and shelves for the vegetable shop.

Students who have been involved at Moja Gabedi say, 'It was good to be part of this project! We enjoyed working here, bringing our own ideas, solving various problems, and seeing the impact of this garden on the community, which includes the homeless shelter, an old age home nearby and we have seen how vulnerable students have been able to

sell their produce for an income as well. Moja Gabedi has brought the community closer, and crime has decreased in Hatfield!'

Moja Gabedi is a sustainable and constructive project, which has benefited the community in and around Hatfield enormously. Self-sufficiency and food security are so important. This project is giving many people a second chance. It is shaping this once-neglected space into one that is beautiful and productive.

Angus Taylor, an UP alumnus and local artist, has erected one of his stone sculptures on the site, free of charge, and this adds great artistic appeal to the urban garden.

In neat wooden huts, students and interns, under the supervision of professionals, offer free occupational, play and art therapy to anyone in the community who needs it.

### Contact information

Gernia Van Niekerk

Email [gernia.niekerk@up.ac.za](mailto:gernia.niekerk@up.ac.za)



“

**Ten things that will  
never fail you are:**

Honesty

Integrity

Showing respect

Hard work

Exceeding expectations

Manners

Being kind

Being excellent at what you do

Spending less than you earn

Being charitable

”



**FLY@UP**

The **Finish Line** is **Yours**



A Graduation ceremony with marks you'll be proud of is right around the corner if you:

CHOOSE YOUR  
MODULES WISELY



MANAGE YOUR  
TIME AND WORK  
CONSISTENTLY



AIM FOR A GOOD  
SEMESTER MARK



WORK HARD  
STRIVE FOR EXCELLENCE  
&  
SEEK HELP!



**FLY@UP** your link to the **SUPPORT NETWORK** you need on **Your** road to the **Finish Line**

**Department of Library Services**

Gateway to academic  
growth and success

**Career services**

Ready for work after reaching  
your finish line

**Student Health Services**

Your physical health is essential  
to your academic success

**Peer Advisors**

Assistance from a first hand  
perspective

**Student Counselling Unit**

Your mental health is essential  
to your academic success

**Faculty Student Advisors**

Individual consultations  
and assistance



**FLY@UP** hosts interactive events for you on a platform called **Kumospace**.

- The purpose of these events is for you to get the opportunity to meet and interact with your peers where this has been made quite difficult because of COVID-19.
- The events give you an opportunity to meet the UP support network, ask ALL questions and clear up any uncertainties you may have.
- Keep an eye on our social media platforms for these events.

Also watch out for our Newsletter to stay updated



For more information and access to tips that could help you in **Your** road to the **Finish Line** visit:  
<https://www.up.ac.za/fly@up> or #FLYatUP





Inspiration

# Higher learning with hybrid learning

By Nineve Grobler

Although you may think that hybrid learning has put a severe dent in your social calendar and robbed you of precious time with your mates, you could very well be missing out on all the opportunities it offers. With hybrid learning, you have the best of both worlds.

You can easily meet those hectic deadlines with the time you gain by not travelling to and from school. After all, your classroom is just a couple of steps away.

You also get the chance to see your teachers face-to-face, rewind if you didn't catch something the first time, and connect with them. No need to worry if you lost concentration for a moment or were ill and missed one of those vital classes—you can catch

up at your leisure. This will cut out a considerable part of the stress you experience because you can learn in your own unique way and at your own pace—do what works for you.

You don't stop learning the moment you leave the classroom. When you do leave the classroom, you can decide what you want your learning environment to look like. Have you always felt that your study time would be better with a bit of background music or softer lighting? You can now customise your working space to suit you! You are in control.

You get to use all those real-world IT skills, learn how to do proper research, and self-learn and communicate—skills you will use for the rest of your life, no matter what

career you choose. You can find a great deal of the information you need by surfing the web. Knowledge is at your fingertips. Say goodbye to lugging around many of those heavy, expensive textbooks.

Think about it: in your small way, you are fighting climate change—the less paper you use, the fewer trees need to be felled. This is also money that can buy data or invest in the latest technology—buy a new laptop or tablet.

**By embracing hybrid learning and making clever use of all its opportunities, you open up a whole new world for yourself. You won't be sorry!**

## Economic and Management Sciences

# Blended learning gives EMS students the edge

The hybrid teaching model that students in the Faculty of Economic and Management Sciences (EMS) at the University of Pretoria have become accustomed to has proven to be the perfect solution to keeping up with the changes and disruptions brought about by the ongoing COVID-19 pandemic. The use of technology in teaching and learning has ensured that EMS students can successfully complete their studies and has continued to equip them with lifelong skills that give them the edge so that they hit the ground running when they eventually enter the world of work. Below are some examples of the exciting activities taking place in the Faculty:



### We have to 'GET TO' do things online

'A few months ago, just before I headed off for my routine 4 km run in our neighbourhood, my wife encouraged me with these words: "You don't have to go for a run ... you get to." It was only some time after that run when I really began to comprehend the beauty and benefits of a "get to" perspective. When I think, "I have to ..." (go for a run/complete a report)", whatever I fill in the blank feels a lot "heavier" than when I think "I get to ...". Looking at my task through the lens of "I get to ...", I also begin to realise that there are many out there who do not "get to", not due to their choices, but due to their circumstances (sickness, opportunities, etc). I've not nailed this perspective yet in all my tasks, but it has begun to give me new energy and joy in much of what I do and, of course, better outputs.'—Fanie Walters, Lecturer in the Department of Accounting.

The teaching team GOT TO implement an initiative while teaching accounting online for the BCom extended curriculum programme is the Campuswire Q&A platform, which allows engagement with students and stimulates the freedom to ask questions. The platform makes it safe for students to ask their questions as their anonymity can be

protected. A fun and competitive element is also added with a live leader board displaying the top student contributors. Students earn points for asking or answering each other's questions and can like questions and upvote answers. Students were rewarded for their contributions with 'bonus marks' that contributed to their informal assessment mark, while the top contributors also earned vouchers from Bookmark, the campus bookstore. One student highlighted the benefit of the platform as follows: 'Campuswire was also helpful because it allowed us, as students, to ask questions. Also, everyone had access to the answers that were shared. Moreover, we had the opportunity to answer our peers' questions, which consequently boosted my confidence and my attitude towards the module, especially when my answers got upvoted by Mr Walters. This made me want to improve my marks and work even harder.'

Walters adds: 'We GOT an opportunity to do some things online, and we are grateful for the successes that we have had. But, to coin my own idiom, "the Jacarandas are not yet in full bloom", and there's still plenty that we will 'GET TO' improve in the online learning space.'



## Economic and Management Sciences

### Marketing students achieve success with online interactions in their industry projects

Studying for a degree in marketing management is most exciting because students get the opportunity to engage with industry to gain real work experience. Yes, you learn by doing! So, how does this work? In short, the Department of Marketing Management teams up with industry partners/brands who share actual marketing challenges with the students. Students work in teams to solve these challenges, and whereafter each group gets the opportunity to share their marketing strategies with the marketing or brand managers. How cool is that?!

Marketing students have engaged with various industry partners over the years, such as Coca-Cola, Playgirl/Playboy deodorant, Appletiser, Satiskin, Italtile, Discovery, Oasis Water, PPS Investments, Major Tech, Mafori Finance, to name but a few. During the COVID-19 lockdown, the department continued its practical industry projects through blended learning, which means that traditional classroom methods were replaced with online interactions. Here are some examples:



#### Online meetings with industry partners

Marketing students met virtually with industry partners for insight into the company and its brands. Students could then offer comments and pose questions via a chat function. They used emojis during the industry presentations to share their enthusiasm and interest.



#### Bag-drop and unboxing

Each team leader received a 'bag-drop' containing the company's products they were working with. Teams had to capture their 'unboxing' of the products and share it online with the team members.



#### Movie trailers and video pitches

Some projects were introduced to students with a movie trailer. In other projects, students had to prepare mood boards and videos to pitch their ideas to the industry partners.



#### Virtual sales simulations

Students virtually engaged with sales managers as part of their exposure to dealing with customers in a sales situation.



#### Online games

Exciting initiatives included a race-with-a-reward online game using the Socrative app, which familiarised students (in a fun way) with the technological knowledge and instructions needed for their online project. Students who completed the game in the quickest time with the highest accuracy received a class coupon that they could exchange during the module for input into, for example, a preferred presentation timeslot.



#### Online sounding-board sessions and presentations

During the projects, students had opportunities to present their preliminary ideas to the industry partners and receive feedback to ensure that each group stayed on track. Final marketing projects were presented via one of the available online platforms such as Zoom, Google Meet or Blackboard Collaborate.

The blended learning approach has taught the students to be adaptable and versatile in an unpredictable environment, which added another valuable skill to the work-readiness of our marketing students. The COVID-19 lockdown allowed the marketing management students to sharpen their digital skills by using virtual tools and apps, proving that learning is just a computer screen away.



↑ Mr FP Aldrich from PPS presenting the exam client information to the honours students in marketing management via Zoom

### Future economists thrive online

A group of second-year economics students is thriving online, according to Dr Nicky Nicholls, Senior Lecturer in the UP Department of Economics. This group was introduced to fully online learning as first-years during the extraordinary 2020 academic year. They took charge of their learning through increased participation in class activities. 'I usually use poll questions quite a lot in class, as well as some questions where I ask students to put their answers in the chat. With this group, in addition to answering my questions, the class has been engaging enthusiastically in the chat, offering opinions and asking questions and even volunteering answers to classmates' questions,' says Dr Nicholls. According to her, this has resulted in the class being very interactive, keeping everyone engaged and making for a better learning experience.

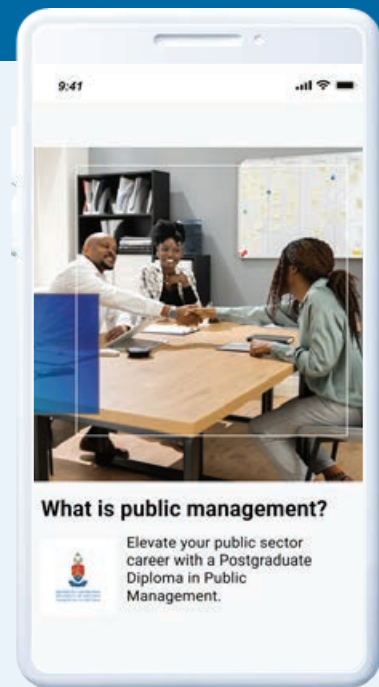
## Economic and Management Sciences

### SPMA's online flagship programme

In 2020 the School of Public Management and Administration (SPMA) launched the Faculty of Economic and Management Sciences' first entirely online Postgraduate Diploma in Public Management. Students participate in 14 weeks of learning with technology-supported assessment, engagement and feedback. Students are all working public officials who need to spend up to 14 hours per week on their learning—commitment is high, and students contribute to their learning and hours through collaborative sessions and group work. Some of the digital tools used are Padlet for assessment, Canva for design and infographic assessment, Weava for annotation and curation (where students co-design content) and PlayPosit to create interactive video lessons.

Students have commented that they feel engaged and challenged. They have created their own WhatsApp groups where more seasoned students assist new students in navigating the pace of learning. Students appreciate the group work and group learning, and the SPMA is proud of this flagship in the Faculty.

'We feel a deep responsibility towards contributing to creating a capable state, and providing this opportunity to learn anywhere and on any device is a first step to increasing access and promoting inclusive education for all! We acknowledge the dedication of UPOne and the Comprehensive Online Education Services (COES) that support the delivery of this great qualification!' says Prof Gerda van Dijk (PGDip coordinator).



### Gamification and simulation in tax

We all know that one day when we start working, we are obliged to pay taxes, yet we are not always sure why we pay taxes, how tax rates are determined or even what effect it has on the economy (or our fellow citizens) when we decide to pay tax (or not).

Once you have registered as a taxpayer, the South African Revenue Service (SARS) issues an assessment (summary of what taxes you need to pay/have paid), and based on this; they can select you for a tax audit. All of this can be very daunting when you have to do it for the first time! The Department of Taxation at UP has developed a simulated platform that looks and feels like the real SARS e-filing platform.

During their undergraduate and postgraduate studies in taxation, UP students complete various assignments that require them to complete a tax return, submit documents for an audit, etc, on the simulated platform in a completely safe environment. This will ensure that they feel comfortable and confident using the SARS e-filing platform when they get out into the real world.

Taxation students at UP also take part in an exciting online game that allows them to compete with their peers in a

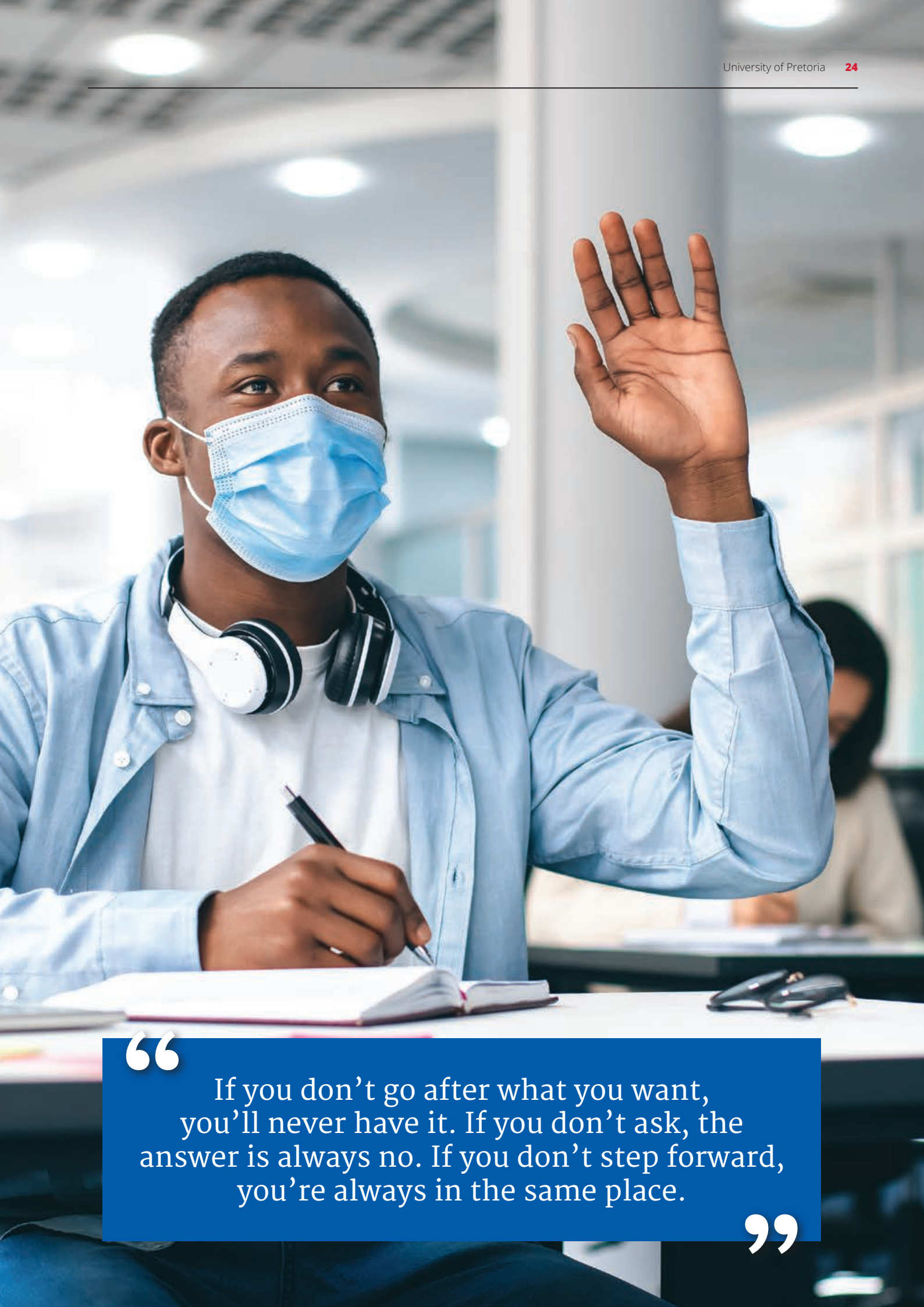
tax simulation, where some students are allocated the role of being the revenue authority (and thus choosing the tax rates) or being a taxpayer (either one that can 'move' to another country with a preferred tax rate or one that cannot move between countries).

After the simulation is complete, students share reflections about their experiences due to their choices in the game. The game aims to provide students with an awareness of the consequences of their decisions as professionals. During the process, students become aware, through their own experiences, of how tax, economics, finance, policy and behaviour intersect and often compete.

The simulation allows students to experience the impact of their decisions on their finances and the finances of a company engaged in trans-border transactions. It also teaches them about the impact of economic policy and the government's responsibilities towards its citizens and creating ethical awareness.







“

If you don't go after what you want,  
you'll never have it. If you don't ask, the  
answer is always no. If you don't step forward,  
you're always in the same place.

”

## Education

# Blended learning in the Faculty of Education

By Professor Salome Human-Vogel

More than a year after the COVID-19 pandemic was announced and higher education institutions were faced with shifting to remote learning for the foreseeable future, the Faculty of Education—along with other faculties at UP—began the process of shifting teaching and learning online during a national state of disaster that saw everyone working, living, learning and teaching from home.

As can be expected, various institutions had varying levels of preparedness to take teaching online, but all had to make important decisions about the kind of learning experiences we would design to maintain continuity in our teaching, and more importantly, students' learning.

While the Faculty of Education could draw on important strengths in terms of a well-established user-base on clickUP with over 90% of modules in the Faculty of Education already having an online presence, it was still a challenge to shift from the blended learning module presence in the Faculty towards a completely online presence.

Staff generally share the experience of most other lecturers at UP that the preparation of online learning experiences requires a great deal more time than a contact session in a physical space would. It has also been acknowledged that not all staff are equally prepared with the necessary design and technical skills required to teach in an online environment. Now, after a year of continued online teaching, we are beginning to draw on the lessons we have learned about blended learning in the past year so that we can provide better learning experiences for our students.

While most staff agree that access to online learning remains a challenge for some students, there is also a clear acknowledgement of the benefits of blended learning, such as:

- (i) increased engagement,
- (ii) more opportunity for authentic and interactive learning in well-designed online modules,
- (iii) increased flexibility that allows students to access recordings of synchronous sessions in a time that is suitable for them, and
- (iv) the ability of lecturers to track individual development better to act earlier to identify at-risk students.



Prof Salome Human-Vogel





## Education

Many modules in the Faculty of Education embrace the UP Teaching and Learning flipped methodology of Prepare, Engage, Consolidate. In the Department of Early Childhood Education, blended learning has expanded the scope of learning materials and resources available for online accessibility within a wide variety of educational platforms which the lecturer could recommend for students. For example, in Literacy Practices (JGL 313), Dr Joyce West asks Foundation Phase students to **prepare** by reading an article before class and to provide a summary of the article using Jamboard.

Using Jamboard, students can collaborate online, share notes and comment on each other's posts to build their understanding of the material before class. During class, Dr West then embeds Peardeck into her Google slide presentation so that students can join in with their phones while **engaging** on their laptops and using an exit ticket to ensure students understand the material. **Consolidation** of the material takes place via interactive presentations using the H5P software integrated with ClickUP.

In the Department of Science, Mathematics and Technology Education, Prof Willem Rauscher employs a combination of theoretical and project work to teach Design and Technology

Education (JOT 210 and JOT 220). Again, students are prepared with slides that are provided before class and that are accompanied by exercises that must be completed. Being a design module, Prof Rauscher makes extensive use of his iPad and pen as he works through exercises with students in a synchronous Collaborate session. In the project, Prof Rauscher provides a brief to students that captures the outcomes of the module and runs parallel to the theoretical sessions they attend. Students could, for example, be asked to design an educational toy.

Due to its practical design nature, this is one of the modules in which blended and online learning have presented significant challenges because students do not have access to resources as they would in a physical classroom and have to make do with what they have available where they are. On the other hand, Prof Rauscher says that teaching continuity could be maintained and synchronous online sessions can be used very well as student-centred discussions, and live-recorded sessions make it possible for students to catch up on work if they miss live sessions.

Reflecting on blended learning, Prof Azwi Muthivhi, Head of the Early Childhood Education Department, worries that blended learning leads to a generic approach to learning that lacks a personal

touch and is detached from the human experience of learning. Especially in large modules, such as Education (OPV 322) with an enrolment of about 1 200 students, it can be a challenge to maintain a social presence in the class. Dr André du Plessis, the module coordinator of OPV 322, makes sure that students can connect with the lecturer, and they are supplemented with tutors appointed to support students who need assistance.

Moving forward, the Faculty of Education plans to maintain an offering of modules that will be offered primarily online (EduOnline), flexibly in a blended format (Eduflex), and a limited number of modules that will be exclusively offered in contact mode (Educontact).

Planning resources around these instructional modalities will help to optimise the planning of the design of the kind of learning experiences we offer to students, as well as assist students to understand the expectations of each module in terms of attendance.



## Engineering, Built Environment and Information Technology



### Is mining engineering still an option for aspiring students?

By Prof Ronny Webber-Youngman

A research report by Swan Global Investments investigated the mining skills gap. It states that, for the next 25 years, there will be a high demand for metals in the world to meet the requirements of the Fourth Industrial Revolution (4IR). The report says that universities need to address the skills shortage in the industry as students' interest in mining declines. Because fewer young people think that mining is an option for them, the mining industry is characterised by an ageing workforce that needs to be replenished.

The report also highlights five key areas driving the lack of interest in mining:

1. A lack of information on mining
2. Climate change
3. Resistance to coal-fired power stations (which are detrimental to a healthy lifestyle)
4. Uncertainty in job opportunities due to the cyclical nature of mining
5. Politics

According to Prof Francois Malan, the function head for research in the Department of Mining Engineering in the University of Pretoria's Faculty of Engineering, Built Environment and Information Technology, commodity cycles are part of mining, and the next supercycle is probably not far away. In the next mining supercycle, capital will flow into the mining industry on a much larger scale than ever before. Because the in-flow of new mining students is currently so slow, there will be a severe skills shortage in the mining industry when the next supercycle hits. The industry will then have to lure good students with attractive benefits. Mining

engineers will require skills that have previously been thought to reside in the domain of computer engineering and computer science, which means that there is an opportunity for students with IT strengths to join the mining industry of the future.

Because the mining industry is adopting new technologies, the industry should become even more attractive to a new generation of tech-savvy students who are born into a technologically advanced world. The multidisciplinary nature of the future mining industry will also attract students with an interest in other engineering disciplines, but with a foundation in mining engineering. In addition to conventional mining engineering skills, mining engineering will also be an option for young people who are keen to develop leadership skills to get the most out of other people.

In addition, the increased focus on smart technology related to the 4IR will ensure that the career prospects for mining engineers will be even more diverse and exciting. Graduates who are trained in the skills required for the modern workforce are creative, innovative thinkers, and are prepared to deal with the complexities that the mining industry presents.

Mining is no longer merely a male-dominated domain. In the digital age, mining operations can be controlled from afar, which minimises workers' exposure to harsh conditions. This offers a much wider scope of opportunities for young women who have critical and creative thinking skills and are challenged to solve complex problems.

Young engineers who studied in the Department of Mining Engineering are

very positive about the viability of mining engineering as a career option. It has been said that there has never been a perfect mine, and until there is, there will always be problems to solve and the chance to add value. The nature of mining means that conventional miners can saturate in the industry, but for exactly this reason, the demand for imaginative individuals has never been higher.

Mineral resources are still among the country's primary sources of raw material and make a big contribution to the country's Gross Domestic Product (GDP). For this reason, mining will remain a viable career option. Added to this is the expected demand for new minerals such as rare earth elements that are used in cutting-edge technologies, and the prospect of asteroid mining and deep-marine mining. According to Prof Webber-Youngman, Head of the Department of Mining Engineering, these future mining applications will open up new avenues for mining as a career with the potential to continue for many years to come.

In the future, mining will be the key player in the development of more sustainable societies and more environmentally conscious systems. As long as there is a demand for more effective materials and methodologies, mining engineers who enter the industry will need to find innovative ways to deal with outdated techniques, mines that do not take the social needs of the surrounding communities into account, and unsustainable methods with negative environmental impacts. These inherited problems require new ways of thinking to find innovative solutions. The Department of Mining Engineering nurtures its students to solve exactly these problems.



## Engineering, Built Environment and Information Technology



### What makes a UP mining engineering graduate unique?

The Department of Mining Engineering works tirelessly to ensure that its academic programmes remain on par with international standards in mining engineering education. As a result, it has contributed to the University of Pretoria being rated as one of the top 50 universities worldwide in the field of minerals and mining engineering according to the QS World University Subject Rankings of 2020/21. The Department has a range of unique teaching and learning initiatives, which are aimed at enhancing student success and delivering well-rounded, technically sound mining engineers.

Mining engineering students are exposed to real-life mining activities before completing their studies through visits to mining operations in their third year of study. The Murray & Roberts Mining Engineering Leadership Academy (M&R MELA) focuses on the development of leadership, communication and stress management skills, as well as conflict resolution and problem-solving. This training equips prospective mining engineers with the necessary skills to address the challenges of the next generation of mining. Another initiative that assists the Department's

students academically is the English Literacy training drive, which supports students to grasp and communicate their understanding of complex mining concepts.

According to Prof Webber-Youngman, engineers are, by nature, problem solvers. This means that they need to be encouraged to think beyond merely the solution to the problem. In today's world, one can no longer think in silos if one is to come up with a viable and sustainable solution.

The problems faced by engineers in the mining industry often relate to situations that have never presented themselves before. Even though it is one of the oldest known industries, it is ever-changing, with ever-increasing risks that threaten to close down operations and impact on the country's Gross Domestic Product (GDP). Taking account of the skills that have been identified as essential in the 4IR, the Department focuses on developing analytical thinking, innovation and complex problem-solving in its students. Good leaders need to have a strong grounding in values, and this is instilled in students during their training at the University of Pretoria.

[www.up.ac.za/ebit](http://www.up.ac.za/ebit)



## Engineering, Built Environment and Information Technology

# Exxaro partners with UP in cutting-edge technology programme to drive safer, more sustainable mining

By Zamokuhle Lethukuthula

Exxaro Resources has entered into a partnership with the Department of Mining Engineering in the Faculty of Engineering, Built Environment and Information Technology (EBIT) at the University of Pretoria to establish the Exxaro Chair in Extended Reality (XR) Technology.

Extended reality technology refers to all real-and-virtual-combined environments and human-machine interactions generated by computer technology, including augmented reality, mixed reality and virtual reality (VR). Through this partnership, the Exxaro Chair will offer a framework of how XR technology can be used to address challenges in the mining industry and identify the best available technologies for solutions. This investment in technological advancement will allow for constant research towards a safer, more economical and more environmentally sensitive form of mining.

'Exxaro opens new opportunities for us to excel in industry-related XR research,' said Professor Ina Fourie, Head of the Department of Information Science and the inaugural Exxaro Chair in XR Technology. 'They are offering us an opportunity to become international leaders in the use of XR technology in the mining industry and mining safety. Many other applications and opportunities could follow.'

'We thank Exxaro for their generous contribution over three years, and we hope that this will be the start of a long relationship,' added UP Vice-Chancellor and Principal Professor Tawana Kupe. He noted that UP would educate and train the next generation of developers and researchers with real-world projects unique to XR technology and immersive learning.

'The EBIT Faculty is honoured to work with an industry-leading company such as Exxaro in strengthening the United Nations' Sustainable Development Goals [SDGs] – especially SDG 9, Industry, Innovation and Infrastructure, and SDG 8, Decent Work and Economic Growth, both of which South Africa desperately needs,' said Prof Sunil Maharaj, Dean of EBIT.

'We are proud to have such a strategic partnership with the University of Pretoria and to be among the mining

companies to explore the potential benefits of XR technology as a strategic intervention across its operations,' Exxaro CEO Mxolisi Mgojo said.

'Together, we are expanding upon the practical capabilities of XR in the South African context while supporting our need for the industry to embrace the opportunities of the fourth industrial revolution. The possibilities of what we could develop are fascinating.'

Exxaro will work with the Virtual Reality and Interaction Lab (VRI), an initiative of the Department of Information Science at UP and the Department of Mining Engineering. The VRI lab applies XR technologies to create interactive user experiences for various applications.

The XR technology programme will assist in selecting the most effective XR technology for specific applications, then design interactions that can enable intuitive interaction with the virtual environment. It will also offer extensive user testing of proposed solutions to ensure that such solutions address and solve as many challenges as possible. Among the solutions explored are the

application of individual and shared VR; mobile, tethered and cave setup VR; communication VR; tracked and untracked VR space; and hand tracking and full-body tracking.

'We are extremely excited about this partnership as part of our drive to support research that overcomes the obstacles associated with the fourth industrial revolution,' Mgojo said. 'We believe that XR technology has immense applications for dealing with mining-related challenges and that it can optimise the resources of companies like Exxaro.'




↑ Prof Kupe experiencing virtual reality.



↑ Left to right: Prof Ina Fourie, Prof Sunil Maharaj, Prof Ronny Webber-Youngman and Mr Mxolisi Mgojo. In front: Prof Tawana Kupe





## Society 5.0: The situation of humans in the digital world

*Prof Alta van der Merwe*

The concept of Society 5.0 was introduced in Japan in the 5th Science and Technology Basic Plan. It follows the hunting society (Society 1.0), agricultural society (Society 2.0), industrial society (Society 3.0), and information society (Society 4.0) (CAO, 2020). The Cabinet Office of Japan (CAO, 2020) defines Society 5.0 as ‘a human-centred society that balances economic advancement with the resolution of social problems by a system that highly integrates cyberspace and physical space’.

Salgues (2018) urges that we need more research work to understand the situation of humans in the digital world. In his book that focuses on the concept of Society 5.0, he argues that different needs define humans and that digital technology allows us to respond to the need for knowledge if we know how to make use of the tools in the digital world. In this article, the focus is on the situation of humans in the digital world using and elaborating on Salgues's (2018) SWOT analysis.

### Strengths of humans in the digital world

The first and foremost strength in the digital world is access to information. Humans now have access to information as needed, with the only limitation being the applicability of the information provided by search engines. Researchers are constantly improving context-relevant searches using techniques such as frequency for relevance, where search engines provide information according to popularity. The access to information also links to the opportunities for skills training where humans can now have access to unlimited online courses, while institutions are constantly renewing curricula to be more relevant to a changing world.

### Weaknesses of humans in the digital world

One fundamental weakness that we are currently experiencing in this digital world is information overload. We often ask what we should do next, what should we look at next, what is the most important, how do we distinguish

what to spend time on and what not. Information overload, also known as infobesity, is where we struggle to make decisions since we have too much information about an issue. As a result of access to information across national boundaries, there is also a disappearance and reduction of the influence of Nation-States. Lastly, a concern is the time spent by humans on media and new phenomena such as gamification and social media addiction that are emerging.

### Threats of humans in the digital world

One of the biggest concerns in a changing world is information being manipulated for propaganda purposes. Fake news is a reality, and one cannot believe what you read on many of the forums on the internet. Much attention is given to the fact that some of the larger platforms do not respect the use of personal information for personal use. Mail platforms use special software to protect our mailboxes from overflowing with offers based on searches done within our browsers. There is a blur between the actual world and the virtual world. Often we find ourselves engaged in activities in the virtual world for hours—especially the gaming world. They create software that engages you in real-world activities but is focusing on participation through virtual world activities. The overload of information may cause a threat that we are so focused on what is out there that we do not distinguish between information and knowledge. Knowledge focuses more on understanding, while information is

just data. Obtaining information does not necessarily mean that there is a level of understanding of the meaning of the information. Lastly, in the digital world, it is easy to reproduce—this is a threat to existing businesses such as the production of books, for instance—where new business models need to be considered for economic feasibility.

### Opportunities for humans in the digital world

The digital world has created many opportunities both in the business world and at a personal level. In many sectors such as health, the digitisation and use of technology have given us access to a mass of previously unavailable information. We are also now able to use the information more constructively and educate more effectively and efficiently. Access to information is not a big obstacle anymore; instead, the focus of new teaching models is making sense of the information and presenting it so that it is accessible.

### Closing remarks

We live in a fast-changing world—technologies are being used more innovatively, and business models need to change and be agile to make provision for all the disruptors while still conducting business daily. Humans need to adapt to the digital world both at work and in our home environment—we need to understand how living in the digital age will impact us. Therefore, humans must be aware of the change, look at the opportunities, and use these opportunities to educate ourselves and be ready for the digital change.

## Engineering, Built Environment and Information Technology

# EBIT is improving the use of solar energy by participating in the Solar Turbo Cogeneration Heat and Power project

By *Primarishni Gower*



Researchers in the University of Pretoria (UP) Department of Mechanical and Aeronautical Engineering use the moon to improve solar energy usage.

The researchers form part of a collaborative project called Solar Turbo Cogeneration Heat and Power ([www.britisenergy.co.uk/developing-projects/solar-turbo-chp/](http://www.britisenergy.co.uk/developing-projects/solar-turbo-chp/)). The aim is to commercialise small-scale hybrid concentrating solar power systems that use concentrated solar power to generate electricity and process heat for commercial use.

'Concentrating solar power systems operate by focussing the sun's rays onto a small solar receiver. This 'captured' energy can then, for example, be used to heat air for electricity generation by electric turbines, or for direct heating of spaces and processes,' said researcher Casey Roosendaal who co-authored an article detailing the results of the project ([www.sciencedirect.com/science/article/abs/pii/S0038092X20305417](https://www.sciencedirect.com/science/article/abs/pii/S0038092X20305417)) along with his colleagues Dr Willem le Roux and Jonathan Swanepoel.

Worldwide solar capacity is growing every year. Presently, only about 1% of the worldwide solar capacity involves concentrated solar power.

This is because these systems are expensive compared to other renewable energy sources, such as electric solar photovoltaic panels.

Roosendaal explains, 'One of the most important issues faced today with regard to solar concentrators is the trade-off between cost and optical accuracy.'

One of the reasons concentrating solar power systems are still relatively expensive lies in the cost of the optical systems used to concentrate the sun's rays.

To achieve any meaningful concentration efficiency, high-accuracy low-cost solar concentrators need to be developed.'

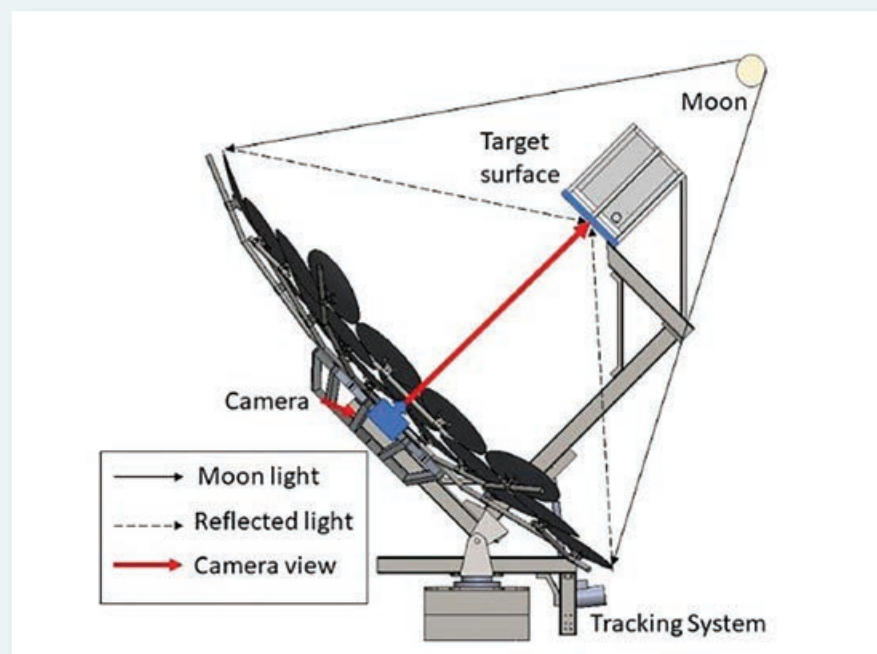


Figure 1: The solar power concentrating system, with numerous small dishes concentrating the sun's rays onto a central collector.



## Engineering, Built Environment and Information Technology

Investigations into vacuum membrane solar concentrating dishes with a novel design were done at UP to address this issue. The design aims to reduce the high construction costs of solar concentrators by using low-cost off-the-shelf satellite dishes (commonly known as 'DStv' dishes in South Africa), focusing on small-scale systems.

The satellite dish is fitted with a reflective polymer membrane with a thin layer of vapour deposited aluminium or silver on the front side, creating a reflective mirror surface.

**'Using a very slight vacuum between the dish and the membrane, these mirror membranes can be re-shaped to form an approximate parabolic surface. This allows any incoming solar radiation to be concentrated into a small focal point.'**

said Roosendaal.

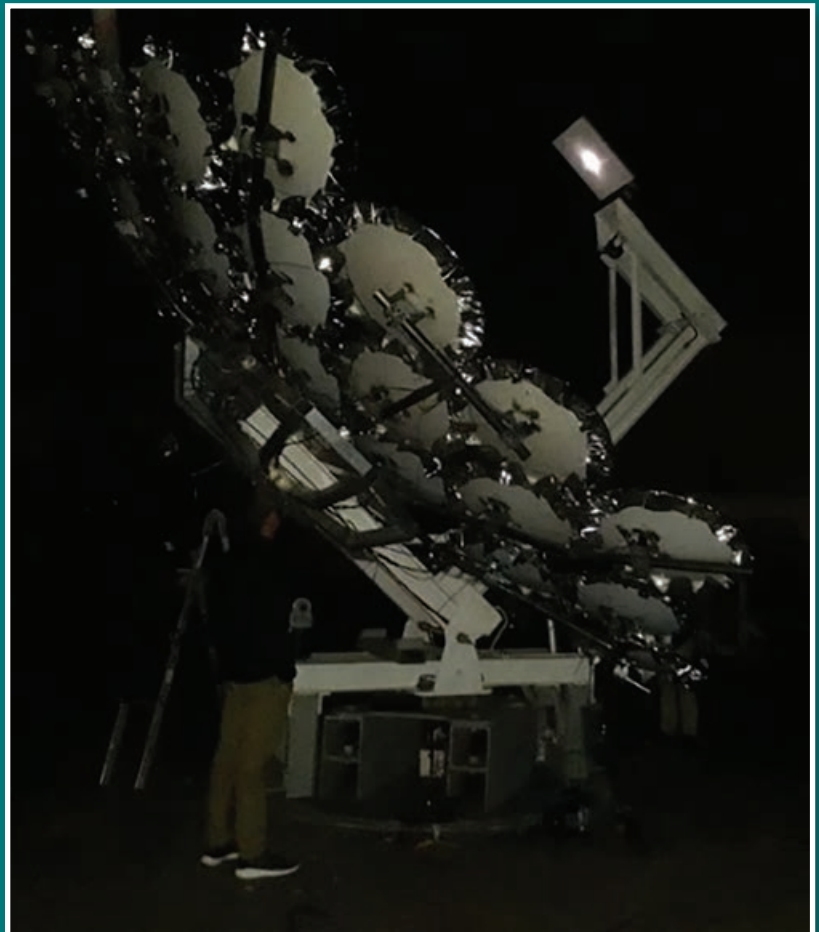
The system was tested using a cleverly unique approach—by substituting the sun's rays for those of the moon, which, because they are much less intense, allow for a conventional camera to be used to photograph the concentrated moon rays on the solar collector.

The moon's rays have many properties in common with those of the sun. Firstly, the lunar spectrum is very similar to the solar spectrum. Furthermore, lunar rays approach the earth with almost the same angular diameter as solar rays. This is critical for approximating the sun.

These tests have shown that, even when individual dishes are not perfectly aligned, up to 88% of the light on the dishes array was focused on the receiver. These results show promise for further development, yield cost-effective, high-performance optical systems for concentrated solar applications, with a larger dish already being developed for commercial operation ([www.britisenergy.co.uk/developing-projects/solar-turbo-chp/](http://www.britisenergy.co.uk/developing-projects/solar-turbo-chp/)).



↑ Figure 2: The satellite dishes covered in reflective mirror membranes which can be adjusted through a vacuum to focus sun (or moon) rays onto a central collector.



↑ Figure 3: The researchers at night—solar concentrating system being tested at night, comprising multiple dishes concentrating the dimmer moon's rays onto a collector.

“

Look closely at  
the present you  
are constructing.  
It should look like  
the future you are  
dreaming.

(Alice Wal)

”





## Engineering, Built Environment and Information Technology

# #UPMandelaMonth: 'Your purpose in life should have an element of helping others to excel.'

By Primarashni Gower

Professor Wynand Steyn is the Head of the University of Pretoria's (UP) Department of Civil Engineering, and in this article, he shares his thoughts on community engagement in the spirit of Mandela Month. He also tells us why he is dedicated to his students and starts his day at 4 am.



Prof Wynand Steyn

### Why did you decide to become a civil engineer?

'I grew up in a small town on the far West Rand. I first heard about civil engineering on the radio when I was in high school and thought it was interesting. I received a bursary from the Council for Scientific and Industrial Research (CSIR) to study Civil Engineering at UP and consequently worked at the CSIR for nearly two decades, before being appointed at UP, where I have played various roles in the Department for the past 12 years.'

I've often been amazed at the routes my career has taken me on, allowing engagements with people on all continents. I have always been curious about stuff from a young age, and my engineering career has provided me with many opportunities to feed this curiosity.'

### Describe a typical day.

'I begin the day with a combination of student engagements (lectures and meetings), staff engagements, and project and research work in the laboratory, field and office. I try to manage my diary to have ample time to spend on each aspect that makes up my responsibilities. In the late afternoon, I try to slow down and reflect on the day before heading home and spending time with my family and reading.'

### What do you love most about your job?

'The daily challenges in addressing a variety of issues, which range from the personal study conditions of students to research that has a global impact.'

At the heart of any of these challenges is usually the need to obtain as much correct information as possible and

develop a model of the challenge and possible solutions. In this regard, whatever I am doing usually boils down to something that my engineering training of solving problems has prepared me for.'

### You start working at 4 am—why the early start?

'Early mornings are ideal to think and have debates with oneself around various issues of interest. If you can't have a decent debate with yourself—posing and defending pros and cons—you won't be able to do so in a balanced way with others. Early mornings enable such engagements before other influences (often noise) start to affect your ability to see clearly.'

### You're known to be devoted to your students, often engaging with them well into the evening. What motivates you?

'Students are the reason that academic institutions exist, and it is the responsibility of academics to guide them on a path of discovery. They are a huge responsibility, as they are the future of the profession and the people that will form the world for the next generation.'

Engaging with students allows me to see the world in ways that are sometimes uncomfortable yet part of someone's reality. Such insights should allow us, as academics, to grow with them.'

My engagement with students outside of typical office hours depends on their circumstances. What appears to be a simple issue to me might affect a specific student's life profoundly; in such cases, timeous feedback on their communications is vital.'

### What does Mandela Month mean to you?

'I'm reminded that each of us has a calling and purpose in life. If we do not understand and follow our calling, we miss our purpose. Calling and purpose are not only for the spiritual or big stuff in your life—they should guide you to take the appropriate steps in whatever you're doing to ensure that your surroundings become a better place for all. Whatever your purpose in life is, it should have an element of helping others to excel. Various communities have a saying along the lines of "it takes a village to raise a child". I believe it takes a community of colleagues, mentors and others to raise a competent, capable and mature adult too.'

### Should more people get involved in community engagement? If so, why?

'The act of community engagement provides an opportunity to get out of your comfort zone, develop an appreciation for your privileges, and ensure that you do not live a selfish life. It should not be a once-off activity but should become a habit.'

### Do you have advice for people who are experiencing adversities?

'You need to have an honest discussion with yourself and similar discussions with trusted friends and professionals. The discussion with yourself is to develop your version of the adversity; the discussion with a trusted friend to get a reality check and calibration on the situation; the discussion with a professional is often to get a truly independent viewpoint and advice.'

## Engineering, Built Environment and Information Technology

# One line, one race—a lifetime's experience!

## Robot Race Day at the University of Pretoria

By Prof Tania Hanekom



The Department of Electrical, Electronic and Computer Engineering, in the Faculty of Engineering, Built Environment and Information Technology at the University of Pretoria, hosted the 9th annual Robot Race Day on 28 August 2021. It was the first time this race was presented on an online platform.

The annual EBIT Robot Race ([www.up.ac.za/robotrace](http://www.up.ac.za/robotrace)) was initiated in 2013 to create an engaging, enjoyable practical project for the third-year microcontrollers module as students struggled with the module. The intention was to excite students about the learning material by creating a formal opportunity to play and explore. Inviting spectators to attend the Robot Race, the final practical assessment in the microcontrollers module, was a spur-of-the-moment decision. We thought that parents, siblings, friends and family would want to see what the students were doing in their engineering class.

The idea of the race is that the students compete against one another on a 5-meter track, and the MARVs (Microcontroller-based Autonomous Robotic Vehicles), which manage the shortest times, would race against one another in the final race. Qualifying rounds are held from early in the morning on the day. Tension, drama, and immense excitement reign throughout the day. The final race is huge, and by now, all are biting their nails and fussing around their MARVs like a brood of mother hens. One line can make or break you—the green line.

In 2020 it was impossible to present the Robot Race as all were struggling to find their feet in the new online environment, and an event such as the Robot Race was not a remote possibility. However,

we realised that one of the significant challenges students experienced was a lack of interaction with their peers and discouragement about lost opportunities.

Therefore, the Robot Race team decided to re-imagine and re-invent the event so that the third-year class of 2021 could have their race mostly in cyberspace. Paper tracks were designed that could be printed out on A4 pages and glued together at home. All the practical demonstrations that preceded the final event were done online. The qualifier, quarterfinal and semi-final entries for The Race were submitted as video entries posted (and judged) on the event's Facebook page ([facebook.com/EbitRobotRaceDay](https://facebook.com/EbitRobotRaceDay)).

Judging was difficult due to variations that inevitably form part of such a remote effort and because of the high quality of the entries, but at last, on 28 August, the in-person event could be hosted for the teams that came out at the top through the online trials. Since only the finalist teams, representatives of industry partners, members of the UP staff and the organising team could attend the in-person event, the entire program was also streamed on the University of Pretoria's YouTube Channel.

Team number 2 conquered the green line on the day and won the race. Team 55 won the prize for the 'coolest MARV'.

Prof Tania Hanekom congratulated all the students for their endurance:

**'Thank you to each and every student who gave their best. These were abnormal circumstances, but you were innovative, determined, and showed true engineering skill and character of which we are extremely proud!'**

The sponsors who attended the in-person event were highly impressed with the innovative way the race was hosted and praised the students for their endurance and creative ideas.

This unique, annual engineering-education-in-action event is not to be missed by anyone with a keen interest in the future of our South African engineering industry and the bright young talent graduating from our engineering programmes at Tuks.

The first event was presented in the foyer of the Engineering 3 Building on the Hatfield Campus of the University of Pretoria. Prof Tania Hanekom (the lecturer for the microcontrollers module) and Mr Willem van Jaarsveld (the laboratory instructor for the module)



## Engineering, Built Environment and Information Technology

painted the floor of the building to achieve consistent colour and then stuck insulation tape for tracks on the painted floor. It took quite a bit of acetone to clean the floor afterwards! Spectators could watch the race from the walking bridges inside the building.

The 2014 race was also presented in Engineering 3, with the coloured tracks that became a hallmark of the event. Meanwhile, it was clear that the number of spectators outgrew the venue, and the event was moved to the Amphitheatre from 2015 onwards. We never expected the event to become such a popular one amongst students and the public.

From the outset, the engineering industry pledged its involvement and several prizes were sponsored. Without industry support, it would not have been possible to host the event for almost a decade now. However, support extends far beyond prizes for the event since a number of our industry partners also fund resources that make learning accessible to all our students, during normal times, but especially during a global crisis.

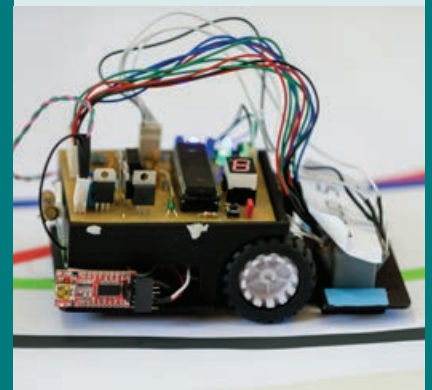
Many of our students don't have the means to invest in the resources that industry provides generously and

consistently. Our industry partners' investment in our department's students has contributed to us being the number-one ranked Department of Electrical, Electronic and Computer Engineering in the country today.

Over the years, the project also extended to other modules in the Electrical, Electronic and Computer (EEC) Engineering degree programmes, creating horizontal and vertical integration of learning content in the programmes. Prof Trudi Joubert introduces the beginnings of the navigation system in the second-year digital electronics module. The sensor design for the robot in the analogue electronics module runs concurrently with the microcontrollers module in the first semester of the third year.

The robot forms the core of the design modules that are presented in the second half of the third year by Prof Tinus Stander and Dr Werner Badenhorst to teach proper systems engineering principles. Elements of the robot are also used as a platform for studying sophisticated control systems in the downstream Control Systems module presented by Prof Ian Craig and Dr Derik le Roux.

This year, the Robot Race inspired yet another dimension in our quest for educating the engineers of the future when we started a Robot School community engagement project ([www.up.ac.za/eece/article/3007492/community-engagement](http://www.up.ac.za/eece/article/3007492/community-engagement)). The project involves the second-year students in the Faculty and a number of final-year students who needed to complete a work-integrated learning period. The Robot Race and all that materialised around its roots over the past decade is proof that small, deliberate steps can cross a bridge that the sceptic did not even know existed. Viva la Robot Race!



⬆ Avid participants of the 2021 Robot Race Day line up their vehicles under the watchful eye of their fans and supporters.

## Health Sciences



### University of Pretoria students prove science and rap music rock

By Prim Gower

Move over Jay Z, Drake, and Eminem—and make way for University of Pretoria (UP) student Rostum Ogbuehi (Ross the Boss), the star of a music video promoting vaccination against the COVID-19 virus.

This fifth-year Faculty of Health Sciences medical student features in a catchy rap video that dispels myths about getting vaccinated. The video has had at least 25 000 views on YouTube and Instagram, and the Dean of the Faculty, Prof Tiaan de Jager, initiated the idea.

Ogbuehi says that through the Faculty's social media crew, Louis Cloete Productions, 'the Dean reached out to me to compose a song and a video to aid with the promotion of vaccination.'

'I saw the importance of it and decided to go ahead with the project, and I must say, I am pleased with the outcome,' Prof De Jager says.

**'Within less than a week, the video had more than 15 000 hits on social media. It is becoming extremely popular, and we are receiving very positive feedback.'**

Ogbuehi crafted the lyrics on information he received from UP's acting Head of the Department of Infectious Diseases, Prof Veronica Ueckermann.

'We have seen a low uptake in people getting vaccinated,' Prof De Jager says. 'This is concerning, as we know that COVID-19 vaccines reduce the risk of people getting the virus and can reduce the risk of spreading it. We were also one of the first Faculty of Health Sciences to open a vaccination site on campus. I believe we must serve the UP community [staff and students] and ensure everybody has easy access to the COVID-19 vaccine.'

I understand the power of rap songs and that they can reach different age groups. I am very proud of our talented students who agreed to compose this unique rap song and contribute to the national and international drive to get people vaccinated.'

Other students who feature in the video are Vincent Mathenjwa (medicine), Reatlegile Mangope (oral hygiene), and Tsholofelo Mphahlele (medicine). Ogbuehi took the footage on Prinshof Campus, at the Basic Medical Sciences Building, and in the Tswelopele lecture theatre complex. The song is based on a Drake-type beat that he had stumbled across on YouTube. 'I really loved the beat and asked my brother Comrade Junior to remake it, but with some slight alterations to make it unique to me. I would say the song borders on hip-hop and rap, though it has a trap feel to it.'

Ogbuehi says that he believed listeners would connect better with him through a visual representation of the song. 'The song alone is good by itself. But the icing on the cake was filming the music video. People need to see who the guy is telling them to be vaccinated. Ultimately, I am trying to aid in the promotion of vaccinating through the University.'

Ogbuehi's music journey began when he was in Grade 10, when another of his brothers, Dawins, introduced him to the world of hip-hop. 'Since then, I've been devoted to the game of music,' Ogbuehi says. He explains that this is not his first collaboration with Prof De Jager and that he approached the Dean with a song that he had written and recorded titled '2nd Year's Guide' in his second year. He felt like the second year was one of the most difficult years, so he asked the Dean to promote the song and video. The Dean was eager and pleased to assist.

Prof De Jager explains that in its efforts to be innovative and creative, the Faculty hosts scientific webinars and has its HSUP TV on YouTube.

#### Contact information

**Tel** +27 (0)12 319 2911

**Email** [healthapplications@up.ac.za](mailto:healthapplications@up.ac.za)



## Health Sciences

# Stevie the robot joins the intensive-care team at UPs Faculty of Health Sciences and Steve Biko Academic Hospital

By Mmane Boikanyo

The Faculty of Health Sciences at the University of Pretoria (UP) and Steve Biko Academic Hospital have welcomed a mobile robot, Stevie. The robot will help improve the treatment of patients during the COVID-19 pandemic through instant live discussion and daily communication between German and South African intensive-care unit (ICU) teams.

Stevie works at Steve Biko Academic Hospital's ICU and is named after Biko, one of the most prominent leaders during South Africa's anti-apartheid struggle. Stevie will be vital in allowing for a bedside ward round attended by ICU teams across the globe. According to Prof Tiaan de Jager, Dean of UP's Faculty of Health Sciences, 'telemedicine plays a crucial role in encouraging long-distance patient and clinician care. COVID-19 has been a massive disruptor in society, especially in the healthcare sector.'

COVID-19 has inspired the healthcare sector to rethink its current systems and be more efficient, he said. This initiative is an interdisciplinary global telemedical collaboration between the Faculty of Health Sciences, the Department of Critical Care at Steve Biko Academic Hospital, the Enhanced Recovery after Intensive Care (ERIC)-Tele ICU at Charité Medical University, Berlin, and the Robert Koch Institute.

'The Faculty takes pride in responding to the demands of the fourth industrial revolution (4IR). They can aid patient care, enhance teaching and learning experience for students, and support the University in conducting important research, thus leaving a positive impact on society,' Prof de Jager said. They are grateful to their collaborators and colleagues for ensuring that telemedicine can take centre stage and help combat COVID-19.

The gender-neutral Stevie is the second robot to be employed by UP, following Libby, the robotic library assistant who arrived in 2019. According to Prof Fathima Paruk, academic and clinical Head of the Department of Critical Care at UP and Steve Biko Academic Hospital, Stevie is now officially the much-adored baby of their ICU team and brings excitement throughout the hospital. Stevie has a privacy handset, a live phone to aid confidential communication during ward rounds,



Stevie the robot

a stethoscope port that can remotely relay information while a patient is being examined, and it enables visualisation of detail for close-up diagnosis and patient care oversight with high-definition pan-tilt-zoom cameras.

'ICU specialists and their teams based in Germany at the CU and RKI will join the South African ICU team in person through the robot's digital screen,' Prof Paruk said. 'Both the SA and German teams, led by ICU specialists, will be able to interact virtually, which will enable the team from Germany to see the patient, look at the ICU monitors, and engage in discussions with patients. The ward round will involve discussing the medical condition and include a management plan over a secure line.'

Prof Paruk added that they would use Stevie to benefit all ICU patients, including COVID-19 patients. They will use Stevie to exchange ideas for specialist training, global collaborations, webinars, educational workshops, especially for highly selective or niche specialities in critical care. Specialists will also be able to advise and conduct a bedside procedure remotely.

Prof Paruk explained that in the context of clinical healthcare medicine, evidence garnered from this collaboration has the potential to inform and shape future practices in South Africa's local critical-care setting, 'considering that we struggle with a shortage of intensivists and ICU beds in South Africa.'

According to Dr Evgeniya Boklage, Country Relations Officer for the Centre for International Health Protection at the Robert Koch Institute, the COVID-19 pandemic has demonstrated that telemedicine is the future. 'We are happy as the Robert Koch Institute continues to support our clinical partners at the Charité Medical University to help connect them with their colleagues at the University of Pretoria. We look forward to exchanging experiences because each country has a different reality, bringing forth various opportunities to learn from one another and improve patients' lives.'

### Contact information

Tel +27 (0)12 319 2911

Email [healthapplications@up.ac.za](mailto:healthapplications@up.ac.za)

## Humanities

## The Global Classroom: Blending experience across continents

By Andrea du Toit (Department of Political Sciences)

For the past four years, the University of Pretoria's Department of Political Sciences has participated in the *Global Classroom*—a class where political science students from across the world learn from each other, in real time.

The *Global Classroom* has four participating universities from four different continents: the University of Pretoria in South Africa, Le Mans Université in France, Fundação Armando Alvares Penteado (FAAP) in Brazil, and the University of Akron in the United States of America.

Students taking the *Global Classroom* have interacted with each other and discussed various topics, including films like *The BlackKkLansman*, issues such as solving climate change, and the news making headlines in each country. Before the pandemic, the class ran through teleconferencing facilities in the Merensky library, but during lockdown, we were able to shift the class to the Zoom platform. Our students already had the skills to interact in a virtual classroom, so they adapted very quickly!

The open nature of the class allowed professors, students, and people working to solve key problems to join the conversation. Classes, for instance, have featured speakers from US Congressman Steve Cohen to Ambassador Kingsley Makhubela from South Africa. Apart from listening to the speakers, students from all four universities also have an opportunity to ask the speakers questions or discuss the matter further amongst themselves. Four times a semester, lecturers turn the class over to the students and allow them to lead discussions and present their own findings. Group projects also give the students a chance to work together, promoting a unique cross-cultural understanding.

For the Honours class in Political Sciences, the *Global Classroom* is only part of the semester. Once their international colleagues leave to write their exams, UP students have four more weeks to apply what they have physically experienced in the *Global Classroom*. Our students get to write publishable articles that unpack the themes they discussed—these articles can be included on their CV when they apply for a job once they graduate.

The *Global Classroom* is particularly relevant for a post-COVID world where students will be able to use technology to interact with each other, their lecturers, and internationally-located presenters and classmates.

The programme is the first of its kind, and has received fantastic feedback from students, visiting guests, and members of academic institutions.

In 2018, the course's lecturers Roland Henwood and Heather Thuynsma won the Faculty of Humanities Teaching and Learning Award, and in 2019 they won the University's Group Teaching Excellence Laureate, a true testament to what is possible when lecturers commit to improving the ways their students learn.

As an alumnus of the course, I can attest to the magic that takes place in a classroom filled with diverse conversations amongst students from all over the world. While critical thinking and academic development is important for students who pursue postgraduate degrees, courses such as the *Global Classroom* also provide students with the opportunity to better understand the problems of the world and push them to develop creative solutions to these problems.

*The Global Classroom showed others in our Faculty how technology could still be inclusive while teaching our students about the world they live in and the problems they must manage. The Global Classroom was pioneered at Honours level but UP will be offering similar courses for undergraduate students in 2022.*

As the world continues to face the challenges of the COVID-19 pandemic, new and exciting methods of learning have emerged. It is our responsibility, as students entering UP, to fully embrace these opportunities!



**Global Classroom**  
Four Universities, Four Continents,  
One Meeting in Real Time



## Humanities

# What is in the Box?

## An innovative way of teaching history at the honours level

By Jane Mampane (Dean's Office in the Faculty of Humanities)

Have you heard people say, 'the past is the past, why should we study events that happened a long time ago?' Or, 'History is a boring subject. We have learned everything about it in high school, there is nothing more!'

The importance of studying history has been dismissed because many think that what happened yesterday is not relevant today. The truth is, history will always be relevant and its impact continues to ripple, one way or another. Therefore, we need to understand what happened yesterday so that we can prepare for what will happen tomorrow.

An honours degree in History at the University of Pretoria (UP) is certainly not boring or repetitive. Here you can learn about **Visual History** (learning about past events through photography, drawings, and film) and **Gendered Histories** (looking at the past from the perspective of gender roles and behaviours, and changes over time).

Not only are there a range of topics and historical figures for you to discover, but UP's **Department of Historical and Heritage Studies** (DHHS) has also changed the way you investigate them. DHHS, in collaboration with the University of Pretoria Archives (UPA), has introduced a new component to their methodology course that challenges students to interrogate history by working physically (despite the lockdown!) with primary materials.



↑ Archived documents are full of exciting facts.

According to Prof Karen Harris (Head of DHHS) and Dr Ria van der Merwe (Assistant Archivist of UPA), the course starts with a theory component that is designed to introduce students to the archival process.

### Students learn to:

- define an archive and how it differs from a library;
- discuss how an archive is developed and how records are collected;
- identify the different types of materials stored in an archive and how to store them properly; and
- how to use an archive and what legislation governs the archival process.

Dr Van der Merwe then takes the students through the actual archival process and the different phases of evaluating, arranging and storing primary materials.

The next step is the practical component where students complete a group project. Each group is given documents that have not been inventoried, that is unordered documents that are still in their original form. These primary documents originated from the Museum of the former Transvaal Education Department and were delivered to UP in 2013. They reflect the history of the South African education system in the Transvaal province and they date back to the late 19th century.

The documents trace the founding of schools, curriculums, policies, lesson plans, newspaper articles, and correspondences between the national and regional departments of education and individual schools. Prof Harris and Dr Van der Merwe confirm that this collection is not part of the national historical inventory and is therefore valuable and rare.

Each student is assigned a random box from this collection and asked to complete the following tasks:

- They have to answer 10 short questions about what their boxes contain.

- They have to apply all the archival concepts and processes they learnt during the theory sessions to their boxes.
- They have to present their findings at a colloquium called '**What's in the Box?**' and their presentation has to highlight the following:
  - the historical context
  - provide a content overview
  - outline the box's research potential
  - select one 'gem' document for discussion
  - provide specific access conditions

This year's presentations were held online on 1 July 2021. According to Prof Harris, the highlight of the presentations was when each student had to select and describe their 'gem' explaining its content and significance, when it was created, and its historical relevance. This year's 'gems' included the treatment of left-handed learners; an inquiry about Dimitri Tsafendas; feeding poor white children; handwriting lessons; and a 'cigarette box' history.

Prof Harris and Dr Van der Merwe believe that, allowing history students to learn about the archival process in a real archive, has taken the Department to a new level. It has opened up an avenue of interaction with an institution that is not generally accessible. Honours students will no longer only study archives in the classroom, but they will also get the experience of working with the archives.

'In a nutshell, the **What's in the Box?** experience was one of moving from a sense of KNOWING WHAT to one of KNOWING HOW', said Prof Harris. She further said that it is important for students to be 'exposed to as many facets of the historian's craft as possible' during their honours year because it equips and inspires them to want to pursue their studies at master's and, possibly, doctoral level.

The Dean of the Faculty of Humanities, Prof Vasu Reddy, congratulated the Department on this innovative teaching method, which is unique to the Faculty and a first in South Africa.

## Law



*'It is a huge privilege and honour for UP Law and UP that EDCJ Moseneke chose to donate his private collections to the University of Pretoria. It comes with a huge responsibility for us entrusted with his legacy. We need to cherish and protect these books and artefacts and share the information with the UP community. We hope to have gatherings soon with Moseneke after the COVID-19 regulations have been relaxed, as this will be a huge motivation for our students.'*  
– Professor Elsabe Schoeman, Dean of UP Law

*'UP Law is proud, humbled and inspired by this generous gesture and looks forward to working with EDCJ Moseneke. UP Law and other UP students will benefit greatly from these private collections from Moseneke, uniquely stationed at our university only. We are sure that this unique collection will attract national and international students, faculty and researchers wishing to explore and read what this esteemed scholar, practitioner, judge and justice used in his illustrious career. We plan to solidify our collaborations with Moseneke and look forward to formulating this relationship with him to ensure his legacy lives on for coming generations. We are going to have several initiatives with him in future to learn from this great giant.'*  
– Professor Charles Maimela, Deputy Dean of UP Law

## UP Law's OR Tambo Law Library now a treasure trove of remembrance of Emeritus Deputy Chief Justice Dikgang Moseneke

By Elzet Hurter

Emeritus (retired) Deputy Chief Justice (EDCJ) Dikgang Moseneke recently donated his private collections of books, artefacts and journals to the Oliver R Tambo Law Library at the University of Pretoria (UP).

Emeritus (retired) Deputy Chief Justice (EDCJ) Dikgang Moseneke recently donated his private collections of books, artefacts and journals to the Oliver R Tambo Law Library at the University of Pretoria (UP).

The donation includes Justice Moseneke's Robben Island security file, private annotated law reports, rare photographs and artworks from his personal, political and judicial career, as well as significant awards, scrolls and trophies. This collection will be housed in the Dikgang Moseneke Research Commons to be constructed in the Law Library.

'In your retirement, you can hardly find an honour greater than people seeking to remember your contributions in your lifetime. This normally happens when

you have passed on, but while I am still alive, UP has given me the tremendous privilege of creating a heritage space containing several unique items connected with my career that will be able to talk to the youth about our long struggles for freedom and change in our country.'

EDJC Moseneke worked towards social justice, African liberation and eradicating inequality in South Africa during his years as a lawyer, which he continued as a Justice. 'I fought most of my struggles against the apartheid government in Pretoria, and now that there is a university that is undergoing transformation in this city, I am proud to be a part of the process. UP has become a place of values that we have fought for, and those values are being lived,' he said.



UP Law Deputy Dean Professor Charles Maimela (left) and Head of the Department of Jurisprudence Professor Joel Modiri (centre) received the donation of books and rare artefacts from Emeritus Deputy Chief Justice Dikgang Moseneke (right). UP Law will be undertaking a project under Professors Maimela and Modiri's direction to honour and celebrate Moseneke's giant legal legacy through other strategic and community engagement initiatives.



## Law

'All these books and journals are my private collections from my time as a practising advocate, junior and senior judge, and Deputy Chief Justice of South Africa. It is generous of UP to want to have these collections become part of a cultural precinct within the library, to share with our country's young people and the UP community at large.'

### Family life

Moseneke is married to Kabonina, and they have a daughter, Duduzile, two sons, the late Bo (who sadly passed away in 2005) and Sedise, and six grandchildren.

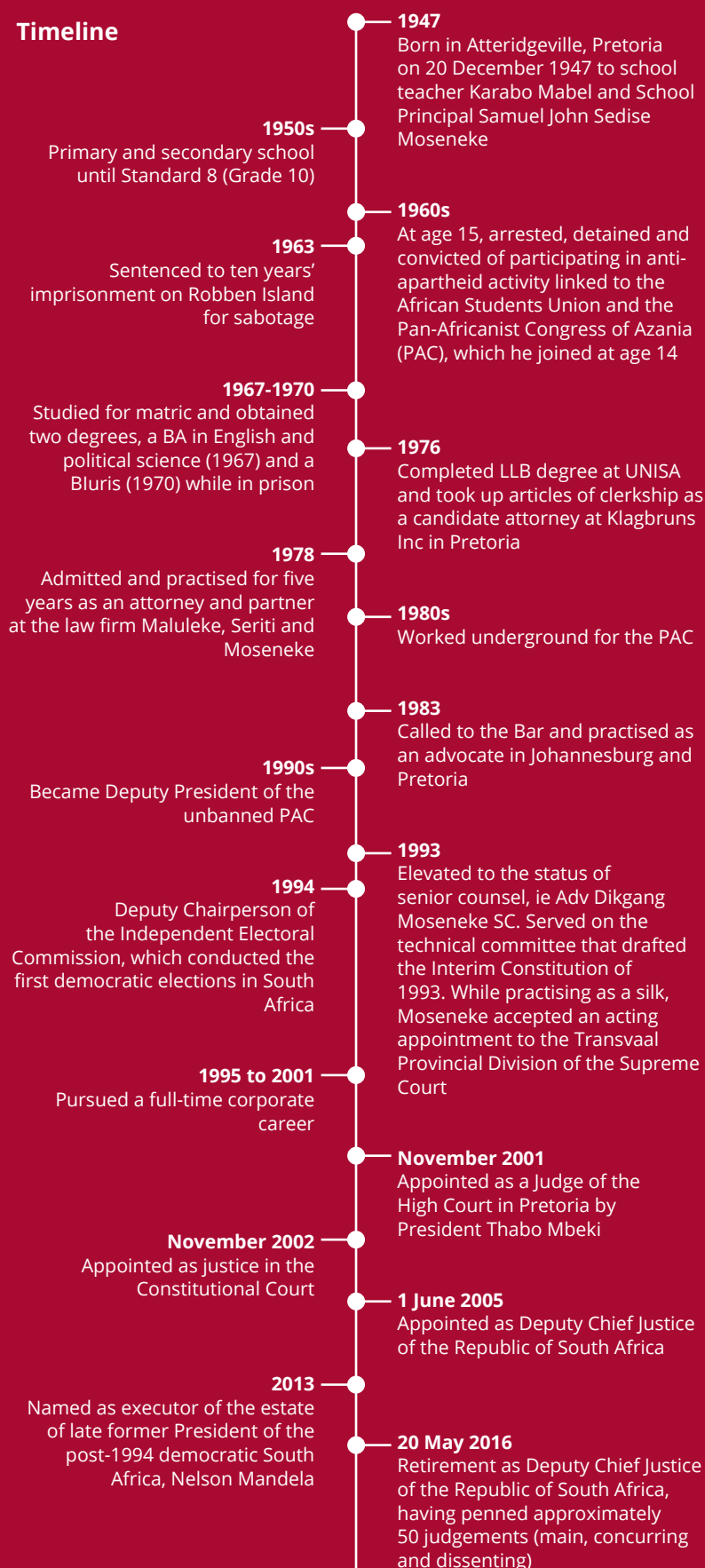
### Chairperson, Chief Executive and Director of many high-profile institutions,

including Telkom, New Africa Investments Ltd, Urban Brew and Metropolitan Life Founder member of the Black Lawyers' Association (BLA) and the National Association of Democratic Lawyers (NADEL) of South Africa. Served in several community and non-governmental organisations, such as Project Literacy (for more than ten years), as Trustee of the Sowetan Nation Building, and as Deputy Chairperson of the Nelson Mandela Children's Fund. Served in several community and non-governmental organisations, including as the First Chancellor of Pretoria Technikon and as Chancellor of the University of the Witwatersrand from 2006 to 2018.

Moseneke holds several honorary doctorate degrees, including an honorary doctorate from UP Law, and is a recipient of numerous awards of honour, performance and excellence, **including the country's highest national honour, the Order of Luthuli in Gold.**

'In *My own liberator*, Moseneke pays homage to the many people and places that have helped to define and shape him. In tracing his ancestry, the influence on both his maternal and paternal sides is evident in the values they imbued in their children—the importance of family, the value of hard work and education, an uncompromising moral code, compassion for those less fortunate and unflinching refusal to accept an unjust political regime or acknowledge its oppressive laws.' – Rakuten Kobo

### Timeline



## Law

'So the prison actually turned into a space in which we were preparing revolutionaries with the tools to overthrow the apartheid regime.'

Moseneke studied for and obtained matric and two degrees, a BA in English and political science and a BLIS, while jailed on Robben Island. He later completed an LLB degree. All three degrees were conferred by the University of South Africa. Moseneke started his professional career as an attorney's clerk at Klagbruns Inc in Pretoria in 1976. In 1978 he was admitted and practised for five years as an attorney and partner at the law firm Maluleke, Seriti and Moseneke. In 1983 he was called to the Bar and practised as an advocate in Johannesburg and Pretoria. Ten years later, in 1993, he was elevated to the status of senior counsel.

'I was arrested as a high school student and ended up serving ten years on Robben Island from the age of 15 to 25.'

'As a young person, my sense of injustice was heightened. Even from the age of ten, I understood very clearly the injustice of an unequal and segregated society. I was appalled by the fact that my school precincts were so much poorer than the school precinct on the other end of town. I was just totally unhappy that the two towns were unequal and separate, that my people were kept out of any political activity. So, it wasn't too much for me to decide that my duty in life was to destroy apartheid, and I got swept up in the political activities.'

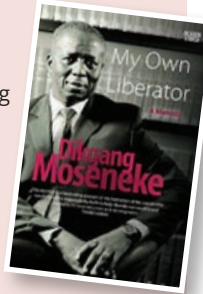
'I, and others, qualified for college admission while studying on Robben Island. I was young and had nothing, so it was quite easy to focus on the job at hand of getting a degree. After three years, I finished my degree in political science and English literature and went on to a law degree and, ultimately, an LLB.'

'The biggest trouble is eliminating poverty. There is an inevitable intersection between class and race and sometimes gender. We still struggle with the full extent of social justice, equality, and the historical axis of apartheid. The impact of this still haunts our system.'

Dikgang Moseneke is the recipient of the 2020 Carl and Susan Bolch Prize for the Rule of Law, which is awarded annually to an individual or organisation who has demonstrated extraordinary dedication to the rule of law and advancing rule-

of-law principles around the world. The Bolch Prize draws attention to the ideals of justice and judicial independence and the constitutional structures and safeguards that undergird a free society.

In *My own liberator*, the first of two memoirs by Dikgang Moseneke, he pays homage to the many people and places that have helped define and shape him. These influences include his ancestry, parents, immediate and extended family, and education both in school and on Robben Island as a 15-year-old prisoner. These people and places played a significant role in forming his principled stance in life and his proud defiance of all forms of injustice.



Robben Island became a school in politics and an opportunity for dedicated studies towards a law degree that would provide the bedrock for a long and fruitful career. The book charts Moseneke's rise as one of the country's top legal minds, who not only helped to draft the Constitution but, for 15 years, acted as a guardian of it for all South Africans.

The tale meanders from the dusty streets of Atteridgeville through to his secondary tuition and untimely residence on Robben Island. Then, I had no idea that my perilous experiences were to set me up for a life of remarkable fulfilment.

The pain and adversity in my childhood prepared me for a life-long commitment to conduct that will bring true and full liberation of our land and all its remarkable people. The sojourn on Robben Island set me on a course of constantly asking: what are the features of a good society?

Not only did Moseneke assist in shaping our new Constitution, but he has also helped to make it a living document for many South Africans over the past 15 years.

'So, I knew when I came out of Robben Island that I had to make a choice either to go into exile or to remain a combatant in the domestic struggle. I chose to do things the way I know best: to become a lawyer of remarkable excellence, unfailing integrity, and commitment to our people's broader struggle in all their kinds, shapes, and colours for an equal and just society.'

To that end, I wanted to become an attorney, even if I was a convicted terrorist. I did everything to achieve that. I litigated against the Law Society to let me in. I went onto the Bar Council, which had a race clause that excluded black people. There, too, I kicked the door open. I was very determined to become a spokesperson for our people in difficult times in our troubled past. I defended every activist you care to remember.'

**'Our people are their own liberators. In the last instance, the people are the bedrock of our democracy. It is they who matter, and we, as institutions that wield public power, like courts, are in their service.'**

'To my remaining colleagues in this Court and all of our Judiciary, I urge you to remain on this hallowed bench, not unaware of what a privilege it is. You must recognise that we are standing on the shoulders of giants. You must promise that you shall remain true and faithful to all you have been as a colleague. You must promise to defend fearlessly the independence of the Judiciary, the rule of law and the full realisation of the basic rights that our Constitution affords to each one of our people. You will be very much part of the transformation enterprise and the democratic project to make our country reflect our Constitution's text and living spirit.'

Fidelity to our oath of office is important, not because we are essential, but because it is not us but our people who will suffer without it. By "our people", I mean the full diversity, poor and rich, white and black, female and male, urban and rural, the marginalised and the powerful all deserve our unwavering protection, which our Constitution demands us to provide. After all, you are the ultimate guardians of our Constitution for and on behalf of our people.'



# 7 Values for learning

By James Robson



1. **Be informed.** Dispel ignorance. Aim to know what you know in great depth and intricacy. Read. Question. Wrestle with deep thoughts. Form your own beliefs. Expand your consciousness. Grow your selfhood.
2. **Be humble.** Realise that you can only see in part. Acknowledge that your point of view is limited. Question, challenge and expand your ideas. Consider concepts from differing cultures and histories. Expand your worldview. Avoid the pitfalls of pride and arrogance.
3. **Critical thinking.** You have a fine mind. Use it to discern between good and bad, true and false; find what is the most beneficial route. Ask for evidence, read vigorously, think with rigor. Consider the plethora of choices, opinions, and beliefs; study diligently; think with care; keep a cool mind and a peaceful heart.
4. **Analytical and logical thinking.** This is a discipline that we need to practice in order to get to the pith of matters. Do not assume or presume anything. Discern what is at stake. Aim to lay open the heart of a matter by asking the right kind of questions that will lead you to intellectual clarity.
5. **Independence.** It means you take ownership of your own learning.
6. **Integrative.** Our learning must enrich our actions. Our contemplations must find meaningful, embodied expression. To hold knowledge apart, in an isolated box in our minds, is to make it meaningless. It must be applied, lived, incarnated into our lives and the legacies we are building.
7. **Be faithful.** A rigorous training gives mental acuity.

## Natural and Agricultural Sciences



↑ The MeerKAT radio telescope in the Karoo  
(Credit: South African Radio Astronomical Observatory)

## Discovery of a rare gas-rich galaxy group with the MeerKAT telescope

By Shilpa Ranchod

Ms Shilpa Ranchod, who recently graduated with a master's degree in physics from the University of Pretoria (UP) leads an international team that reports the discovery of a large, unusual group of galaxies with South Africa's MeerKAT telescope. This result is a component of her MSc thesis, supervised by Prof Roger Deane.



Shilpa Ranchod

Her research is focused on understanding atomic hydrogen's role in star-formation in the younger universe, and dense regions within it. To do this, she uses the 64-antenna MeerKAT telescope, the South African precursor to the Square Kilometre Array. The observations that led to this serendipitous discovery form part of the MeerKAT International GHz Tiered Extragalactic Exploration (MIGHTEE) Survey, a large collaboration of international scientists.

The survey produces hundreds of terabytes of data, which are processed on the cloud computing facility hosted

by the Inter-university Institute of Data-Intensive Astronomy (IDIA), a partnership between the universities of Pretoria, Cape Town and the Western Cape.

This galaxy group was identified through the detection of 21cm atomic hydrogen (HI) emission, an important component of galaxies and a key ingredient in star formation. Within galaxies, HI is diffuse and extends far beyond the extent of the stars, making HI a sensitive tracer for the dynamics of galaxy evolution, particularly how the group environment affects this. Twenty of these HI-rich galaxies were detected, and through HI spectral line

observations were identified as a large galaxy group for the first time. Some of the member galaxies have disturbed morphologies, clearly influenced by the group environment. These include an interacting pair of galaxies that will potentially merge, and a 'jellyfish galaxy' exhibiting a long tidal tail.

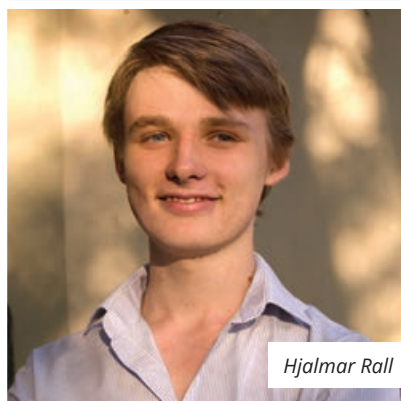
The results suggest that the group is rare and in the early stages of assembly due to a large number of HI-detected galaxies and its unsettled velocity distribution. This discovery will be published in the Monthly Notices of the *Royal Astronomical Society* journal.



## Natural and Agricultural Sciences

# Hjalmar Rall (18) graduates *cum laude* with an honours in physics

By Xolani Mathibela



Hjalmar Rall

Whizz-kid Hjalmar Rall started his academic journey with the University of Pretoria (UP) in 2017. The young man, who registered for a BSc (Physics) degree programme at the age of 14, completed his initial degree *cum laude* and has recently graduated *cum laude* with a BSc (Hons) Physics in this year's autumn graduation season.

*'I was aiming for a *cum laude* from the start, and that motivated me to continue with the hard work. As a result, I passed with distinctions,'* he said.

According to the 18-year-old, who is planning a career in academia, there are no research groups in South Africa focusing on his specific field, and only a few worldwide. 'I will have to look overseas as I'll be focusing on Quantum Information Theory research,' he said. Hjalmar completed Cambridge A-levels at the age of 13. When Grade 5 lessons no longer held any interest or excitement for him, Hjalmar's father began home-schooling him. From that moment on, he sped through the Cambridge curriculum. 'I consider myself a diligent and mature student, and my home-schooling gave me the necessary academic background to be able to complete my studies at the

University with relative ease. Although, there were a handful of modules that seemed completely impossible to pass. Some of them frightened me. But, once I ignored that, it was simply a matter of putting in enough hours of effort and practise,' he said.

Hailing originally from Riebeeck Kasteel in the Western Cape, Rall describes his academic journey as relatively easy, most of the time. It was his love of mathematics that made his studies enjoyable and served as sufficient motivation for him to overcome any challenges he encountered.

According to Rall, had he not chosen physics as his field of study, it would have been pure mathematics. 'My motivation for studying physics is that I get to use abstract mathematics daily, without too much effort, but it is such an interesting field that I wouldn't have minded pursuing the subject itself,' he concluded.

## UP graduate in Advanced Data Analytics wins national paper competition

By Martie Meyer

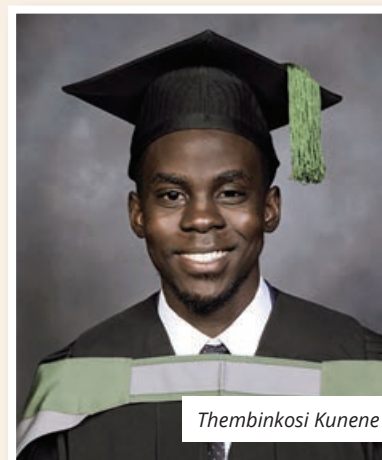
Mr Thembinkosi Kunene, an alumnus of the University of Pretoria (UP), was recently announced as the winner of the South African Statistical Association Postgraduate Paper Competition for 2020 for his paper titled 'Spatial dependency between a linear network and a point pattern'.

The competition is open to entries from South African master's and doctoral students. A total of 16 papers were received from six universities (UCT, UP, UKZN, NWU, Unisa and SU) and underwent a review process.

'I feel incredibly proud to have won this competition in a field I am passionate about while contributing what I can to the existing literature and methodology. I was able to accomplish this with the guiding hand of my supervisor, Prof Fabris-Rotelli. In the future, when she is not involved, I will draw from this experience whenever

I am faced with a challenging task. It certainly reinforced the idea of how much one can achieve if one sets their mind to it, and this will spur me on,' Thembinkosi said when asked how he felt about this achievement.

Thembinkosi completed his master's degree in 2020 with a mini-dissertation of the same title under the supervision of Prof Inger Fabris-Rotelli in the Department of Statistics. His research develops a methodology to measure the spatial relationship between point processes and a linear network, for example, location data such as crime occurrence locations in relation to a road network. Such location data is regularly studied when occurring directly on the linear network. Thembinkosi's work contributes to spatial data near the linear network but not on it, requiring a good choice of distance measure between the data types.



Thembinkosi Kunene

Thembinkosi started his BSc (Actuarial and Financial Mathematics) studies at UP in 2017 and completed his MSc (Advanced Data Analytics) in 2020.

[www.up.ac.za/statistics](http://www.up.ac.za/statistics)

## Natural and Agricultural Sciences

# Nanotechnology as a solution to antimalarial drug delivery

By Meta Leshabane

Meta Leshabane, from the Malaria Parasite Molecular Laboratory (M2PL) in the Department of Biochemistry, Genetics and Microbiology, has recently completed her MSc in biochemistry, and her work was included in four scientific papers in top international journals\*.

In 2017, Ms Leshabane was placed at the M<sup>2</sup>PL under the NRF internship programme where she received valuable exposure to management, research and technical skills. Since then, she has been involved in the M<sup>2</sup>PL group, completing both her honours and master's degrees. Ms Leshabane attributes the success of her MSc project to the structure of the communities of practice (CoP) in malaria elimination and her supervisors Prof Birkholtz (SARCHI Chair in Sustainable Malaria Control) and Dr Coertzen. The CoP allowed 'one-of-a-kind' transdisciplinary research to lead to health innovations for malaria

elimination. 'The research completed under the CoP project covers a wide range of topics, which is very interesting. This allowed me to acquire invaluable skills and knowledge from many students and experts on a level that would be difficult without the CoP structure,' Meta explained.

'My research specifically focused on determining the antimalarial properties of novel nanoparticles encapsulated with antimalarial drugs and is based on expertise from three fields, namely advanced macromolecular structures, drug discovery and molecular biology. These are headed by Prof Klumperman from Stellenbosch University, Prof Chibale from the University of Cape Town, and Prof Birkholtz, respectively. We discovered several novel antimalarial series that can kill multiple stages of malaria parasites. With the use of nanotechnology, the delivery of such

antimalarials in an orally bioavailable fashion becomes a reality.'

Ms Leshabane is currently employed as a research assistant at M<sup>2</sup>PL under the CoP and now focuses on target identification of antimalarial drugs active against the most lethal form of malaria-causing parasites.

\* ACS Infectious Diseases; ACS Biomaterials Science and Engineering; ACS Biomacromolecules; and the Journal of Medicinal Chemistry

The M<sup>2</sup>PL group forms part of the Parasite Control Cluster of the University of Pretoria Institute for Sustainable Malaria Control (UP ISMC), a transdisciplinary entity that is researching innovative ways to eliminate malaria.

[www.up.ac.za/biochemistry-genetics-and-microbiology](http://www.up.ac.za/biochemistry-genetics-and-microbiology)

## Gopika Ramkilawon reaches semifinals of FameLab SA

By Martie Meyer



Gopika Ramkilawon

Gopika Ramkilawon, a master's student in the Department of Statistics recently competed in the FameLab SA competition against peers from the DSI-NRF Centre of Excellence in Mathematics and Statistical Sciences/

Centre of Excellence in Palaeosciences and reached the semi-finals of the competition.

According to her supervisor, Dr Johan Ferreira, 'This is very exciting because, as far as I know, this is the first time that a student in the discipline of statistics/mathematical statistics has ever reached the semi-final.'

Gopika is busy with an MSc in Advanced Data Analytics and is also a Statistics Intern Team Leader in the Department.

According to Gopika, 'FameLab is a science communication competition with heats across many universities and scientific institutions/centres. I made it through the first heat, competing with up to 45 other individuals from various

scientific platforms to reach the semi-final. I specifically competed amongst peers from the Centre of Excellence and discussed the Central Limit Theorem in my talk. The semi-finals took place in April, and I was truly excited to talk about Statistics in a manner that everyone can understand, love and appreciate. I am privileged and proud to again represent the Department of Statistics. I strive to fly our University's and Department's flag and name in high regard.'

Gopika was also in the Top 100 of the Absa Group GradStar Awards in 2020. These achievements indicate that we, as future leaders, can bridge the gap between academics, leadership and innovation.

[www.up.ac.za/statistics](http://www.up.ac.za/statistics)



## Natural and Agricultural Sciences

### BSc (Ecology)

The BSc (Ecology) programme explores how animals and plants interact with each other and the natural environment. It will allow you to contribute to their conservation and solve the challenges threatening life on Earth. If you want to pursue a career in biodiversity conservation, environmental consultancy, land rehabilitation or wildlife management, this programme is for you.

#### What career opportunities exist for graduates?

As a graduate you can find employment as a conservation officer, environmental consultant or manager, game ranger, research scientist and more.

#### What makes this programme unique?

BSc (Ecology) is the only programme of its kind offered in South Africa and teaching is focused on animals and plants, ecology, geographic information systems and quantitative statistics.

#### Which companies employ our graduates?

You can find employment at government agencies concerned with the environment, conservation organisations, state or private game reserves, environmental consultancies and education initiatives, academic and training institutions and many more.



Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
<b>BSc (Ecology)</b> [3 years] <b>Closing date (SA and Non-SA):</b> As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32

## Natural and Agricultural Sciences



# What does an ecologist do?

*By Bernard Coetzee, Nico de Bruyn  
and Mark Robertson*

Ecology is the study of the relationships among organisms and their interactions with the physical environment. Ecological studies can include different levels of ecological organisation, such as populations, communities, ecosystems and landscapes. We profile three ecological research projects of academics in the Department of Zoology and Entomology at the University of Pretoria to illustrate the diversity of the field.

### Artificial light at night

The artificial light produced in daily activities is changing the natural world. These lights can attract and disorientate insects, and when those are mosquitoes, it might change how they bite humans and transmit diseases like malaria. Dr Bernard Coetzee studies how humans use lights and what that means for environmental and human well-being. He uses various approaches, from lab-based work to field studies measuring different aspects of mosquito ecology. Only once we fully understand how human actions change the natural world can we plan for and prevent any negative consequences. Visit [www.bernardcoetzee.com](http://www.bernardcoetzee.com) for more information.

### Climate change and community ecology

Human activities have caused climates to warm since the industrial revolution. Ecologists are trying to understand what the impacts of this warming are on biodiversity. Elevation gradients are good places to study the effects of climate change on biodiversity as they represent natural temperature gradients. Temperature decreases with increasing elevation. As the climate warms, species are expected to colonise areas of higher elevation that were previously too cold. Professor Mark Robertson's research group has been studying ant communities on an elevation gradient in the Maloti-Drakensberg Mountains ([www.markrobertson.co.za/sani-pass-elevation-gradient-project](http://www.markrobertson.co.za/sani-pass-elevation-gradient-project)). The transect starts at 900 m, near the town of Ixopo, and ends at 3 000 m at a point above the top of the Sani Pass. They have recorded significant warming of winter temperatures at the lower elevations. At the sites that have warmed over time, they have found that more warm-adapted species make up communities than at the start of the study in 2006.



↑ Research group studying ant communities on an elevation gradient in the Maloti-Drakensberg Mountains



## Natural and Agricultural Sciences

### Marine mammal populations

The world's oceans are integral drivers of climate patterns. The great Southern Ocean surrounding Antarctica links all the world's oceans and is therefore significant in global climate change. Monitoring populations of top predators in the Southern Ocean can indicate trophic changes throughout their ecosystems and how such changes might relate to global climate change patterns. Professor Nico de Bruyn's research group is specifically interested in how variation between individuals, influenced by intrinsic (species biology) and extrinsic (environmental) factors, influences their populations in the face of global

changes. His Marion Island Marine Mammal Programme (MIMMP—[www.marionseals.com](http://www.marionseals.com)) has been collecting individual-based population data on seal and killer whale populations in the sub-Antarctic for four decades, without interruption. The MIMMP databases are unique and invaluable for a better ecological understanding of the long-term consequences of changing environments.

*Field researchers continuing a long-term population study on southern elephant seals at sub-Antarctic Marion Island. Photograph by Nico de Bruyn.*



### Not all ecologists work in academia



1. Photograph of ant by Peter Hawkes. 2. Small tributary of the Nwatshtsaka river taken by Bernard Coetzee. 3-4. Photographs by WikiCommons, CC 2.0.

Ecologists also work in exciting contexts outside academia, including NGOs, governments, consultancies, advocacy and policy, and the private sector. The primary job of an ecologist is to study natural habitats or nature, specifically focused on understanding interactions occurring within a given environment. An ecologist's goal is to preserve ecosystems and protect ecosystem functioning.

Ecologists work towards providing the best current scientific understanding of ecosystems to advise others, such as conservation practitioners and policymakers, who can then make management decisions. The work is truly diverse—from statistical analysis and report-writing in front of a computer to trekking through the hearts of rain forests.

The world's governments are tasked with halting global biodiversity loss, and ecologists have a crucial role in ensuring sustainable development that does not harm people or nature.

### What to study to become an ecologist

To become an ecologist, the way to start is with a BSc, majoring in Ecology, Zoology, Botany or Entomology. This would typically be followed by a BScHons degree and an MSc in an appropriate discipline. Using your spare time (eg holidays) to gain practical experience by working in the field provides excellent support to your theoretical knowledge gained through your degree studies.

#### Contact information

[www.up.ac.za](http://www.up.ac.za) > [zoology-entomology](#)

[www.facebook.com](https://www.facebook.com/ZooEntUP) > [ZooEntUP](#)

## Natural and Agricultural Sciences

# Entomologists help to address food waste

By Prof Chris Weldon

When was the last time you threw out a mouldy, stale, or rotten piece of fruit, bread, cheese, or meat? This type of food waste, called consumption waste, is only one in a chain of organic waste production. Even before food reaches your home, large amounts of waste are generated. In South Africa alone, it is estimated that over 8,6 million tonnes of this 'pre-consumer' waste are generated each year. That is approximately 170 kg for each person in South Africa in a year.

### Food waste is a problem

Food waste is bad for the environment and food security. It means that scarce water and nutrients used to produce food are lost, excessive pesticides are used, more greenhouse gases are released into the atmosphere than needed, and ultimately, less food reaches hungry people. As it decays, food waste contributes to greenhouse gas emissions, pollutes surface and groundwater, produces odours, and attracts pests. Food waste also adds to the cost of food for consumers because the extra resources needed to compensate for those losses need to be covered by farmers, fresh produce markets and supermarkets. These problems are so big that the United Nations has declared 29 September the International Day of Awareness of Food Loss and Waste ([www.fao.org/international-day-awareness-food-loss-waste/en/](http://www.fao.org/international-day-awareness-food-loss-waste/en/)).

But solutions are being developed. In the University of Pretoria's Department of Zoology and Entomology ([www.up.ac.za/zoology-entomology/](http://www.up.ac.za/zoology-entomology/)), a team of researchers is working with industry and using their knowledge of insects to help address the problem of pre-consumer food waste while also generating useful products that support further food production.

### Insects for waste bioconversion

Waste bioconversion is the process of retrieving nutrients from waste using living organisms. Pre-consumer food waste is high in nutrients and a natural resource used by insects to breed. Insects feed on the waste, helping to reduce it while taking nutrients into their bodies. After insects have finished feeding on food waste, they are rich in protein and fats. The insects can be harvested and processed into food additives for livestock like chickens, pigs and farmed fish. They can also be processed

further to extract the oils to produce biodiesel and other chemicals used in the beauty, health and wellness industries.

Chris Weldon ([www.up.ac.za/zoology-entomology/article/2249396/prof-chris-weldon](http://www.up.ac.za/zoology-entomology/article/2249396/prof-chris-weldon)), an Associate Professor in Applied Entomology, and several of his students are working out whether flies can be used in bioconversion. He says that 'flies are normally associated with different types of organic waste, so that means they are ideal candidates for bioconversion'. Prof Weldon's group is also searching for the best ways to breed the vast numbers of flies needed to feed on and convert all the pre-consumer waste produced.

They have found that blowflies may be helpful in bioconversion. Blowflies are the metallic blue, green and brown flies that you might see around your home. Prof Weldon and his team found that 'blowflies are easy to breed ([doi.org/10.1093/jee/tox251](https://doi.org/10.1093/jee/tox251)), multiply fast and can very effectively convert ([doi.org/10.1111/jen.12712](https://doi.org/10.1111/jen.12712)) meat-processing, fruit and vegetable waste into their own body tissues. Meat-processing waste is a particular problem because it tends to be not degraded well by other insects used for bioconversion'.

Another type of fly used for bioconversion is the black soldier fly. Prof Weldon says that 'the black soldier fly is already being used in commercial bioconversion facilities, but a lot still needs to be known about ensuring consistent rates of waste reduction and fly output and quality'. Working with a bioconversion facility near Centurion in Gauteng, South Africa, the team has discovered what female black soldier flies like to lay eggs on, the best time to harvest ([doi.org/10.1111/aen.12571](https://doi.org/10.1111/aen.12571)) black soldier fly larvae, the right blend of waste to achieve the best levels of waste reduction and larval production, and how best to dry the larvae for processing into animal feed.



## Natural and Agricultural Sciences

### Still more to do

Prof Weldon knows that there is still a lot to do. He says, 'there are more flies that can be tested as candidate bioconversion agents. For the already promising flies, we need to work out the best way to breed them at large scales. There is also the potential to combine different insects in optimal blends for livestock feed'.

Eventually, the work being done by Prof Weldon and his students in the Department of Zoology and Entomology will help to reduce food waste going to landfill and make food more affordable. They will also retrieve nutrients from food waste and redirect them back into food production systems. He says, 'we are trying to create a circular economy, closing the loop between food waste and food production, and feeding more people more efficiently'.

#### What is entomology?

The scientific study of insects.

#### What is applied entomology?

The use of knowledge of insects to benefit humans. This includes working out the best way to control insect pests, helping to promote crop pollination by insects, identifying insects that indicate environmental health, using insects to rehabilitate degraded land like former mine sites, and solving criminal cases using insects on bodies as evidence.



↑  
Adult black soldier fly

#### How can I become an entomologist?

Register for the BSc (Entomology) programme ([www.up.ac.za/yearbooks/2021/programmes/view/02133401](http://www.up.ac.za/yearbooks/2021/programmes/view/02133401)) at the University of Pretoria!

#### Is there work as an entomologist?

BSc (Entomology) graduates are highly sought after by the agriculture industry and government agencies, mainly to work on pest detection and management. Postgraduate study in entomology at honours or higher levels opens more opportunities with higher levels of responsibility, involvement in solving entomological problems and higher salaries.



↑ Fruit and vegetable waste. All photos were taken by Nina Parry.



↑ Black soldier fly larvae developing in macerated fruit and vegetable waste



↑ Fully developed black soldier fly larvae ready to be separated from degraded fruit and vegetable waste



“

Don't impress people by your degrees, relations, position or power. Impress them by your humility, care, devotion and love —by your humanity.

”





## Theology and Religion

# Local learning, global partners and sustainable development

By Tanya van Wyk, Pheny Montsho, Ninnaku Oberholzer and Dana Mahan

In partnership with Humboldt University in Germany, students from the Faculty of Theology and Religion at the University of Pretoria participated in a master class of the *International Network on Religious Communities and Sustainable Development* from 31 May to 11 June 2021.

Thirty students and PhD candidates attended this ambitious two-week intensive course, deepening their knowledge in various methodological classes and lectures by international students and expanding their empirical research skills. Moreover, they went on to present highly interesting projects during the *Religious Communities and Sustainable Development international conference*.

This group of emerging and established local and global students engaged with one another entirely online, due to the travel restrictions imposed by COVID-19, using *Tensions of Transdisciplinarity* as their theme. One member of the group, Pheny Montsho, reported that, 'Any opportunity to engage with leading researchers is awesome, and the conference provided exactly that — a platform with various local and international experts on topics I am passionate about. Whilst I still had hoped for a physical meetup, the encounter was truly thrilling in both the content and the presentation, and it was truly a privilege to be afforded that opportunity. I now have friends from across the globe who have helped me develop my skills and knowledge on matters I care about.'

Another participant, Ninnaku Oberholzer, confirmed that, 'The University of

Pretoria and Humboldt University collaboration on Religious Communities and Sustainable development has been a big part of my life and academic growth for the past two years. The collaboration has given me the opportunity to engage with students in different disciplines from different contexts and cultures and has taught me valuable research and communication skills in order to succeed in an ever-growing and inter-disciplinary field of study.

Whilst COVID-19 has affected our ability to travel and connect with one another, our representatives from both universities worked hard to ensure that the collaboration could move forward and succeed. Luckily, online teaching platforms gave us the ability to move forward with our sessions, still connect with each other, and continue our research in remote locations.'

Though the pandemic has brought with it new and complex challenges, the students, lecturers and researchers that participated in the *Religious Communities and Sustainable Development* master class have demonstrated that the process of teaching and learning cannot only carry on, but that it can also have a lasting, positive impact on the world, the one we all share.



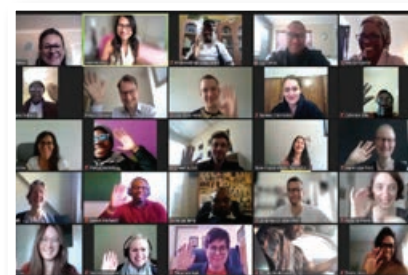
Dr Tanya van Wyk



Pheny Montsho



Ninnaku Oberholzer



Some of the UP PhD participants in the international conference.

## Veterinary Science

# Faculty's veterinary experts cast a tiger's eye over Fushan

By Chris van Blerk



Home again. Fushan is in his camp, awake and happy. ↑

To receive a tiger as a patient in the Faculty's Onderstepoort Veterinary Academic Hospital (OVAH) these days may not be that unusual anymore, but every time that happens, one cannot escape the lasting impression such a magnificent and majestic beast has left.

This time it was Fushan, a nine-year-old male Siberian tiger from Cheetah Experience in Bela-Bela in the Limpopo Province. Fushan was born in South Africa and donated to Cheetah Experience (at the time they were still located in Bloemfontein) when he was around five months old because of an existing hip problem. He was always likely to need medical intervention at some stage in future and the centre—home to several endangered and threatened species—always accepted animals with special needs.

When Fushan arrived at his new home at that young age, he already limped but ran around and played happily. Previous examinations led to the centre being told that it was believed he had hip dysplasia and they had to wait until he was fully grown to be evaluated. They were advised to monitor him and give him calcium supplements.

As he became older, the limp became more pronounced and in 2017, the centre had set up their veterinary practice in Bloemfontein. They were able to sedate and examine him after which their veterinarian, Dr Sandra Bertram, diagnosed serious osteoarthritis in

the left hip, likely caused by trauma as a young animal. The acetabulum (or socket of the hip bone) also showed damage and had an abnormal shape, while the left hip was unable to extend more than a few centimetres. The tiger was prescribed pain medication and supplements and had access to a swimming pool to offer some therapeutic value. Over the next few years, his behaviour was closely monitored and his medication and supplements were adjusted, particularly in instances when the weather got particularly cold or he had over-exerted himself, which influenced his mobility.

In February 2021, Fushan was relocated to Cheetah Experience's new property in Bela-Bela. His new enclosure is 7 500 m<sup>2</sup> and he has a swimming pool that is 3 m x 5 m x 1.5 m deep, lots of trees, bushes and rocks. Fushan was always active in Bloemfontein and he enjoyed walking along the fence line with volunteers and staff. In Bela-Bela, he does the same. On good days he stalks, runs and jumps around.

Fast forward to early July 2021 when Fushan was brought to the Onderstepoort Veterinary Academic Hospital (OVAH) to get some dental work done as well as to assess his hips. Our Faculty's veterinary experts, among others Prof Katja Koeppel, veterinary wildlife specialist, Prof Gerhard Steenkamp, a specialist veterinary dental surgeon, and wildlife veterinarians Dr Jennie Hewlett and Dr Annette Roug were on hand to perform comprehensive examinations and treat the beautiful animal.

Particular examinations on his hips were aimed at determining if there was any degeneration of the joints and to find out if there was something more that could be done for him. As more or less expected, there was some deterioration of his left hip/joint but Cheetah

Experience will be able to continue managing his condition with medication and assess him regularly. His current supplements will also be reviewed and alternatives will be recommended if needed.

Staff at Cheetah Experience have always wondered why Fushan does not chew on things and an examination by Prof Steenkamp revealed chipping on some canines, which has developed over time. For this, Prof Steenkamp performed root canal procedures on three of Fushan's canines. He will review the dental work in six months unless there is earlier evidence of problems.



↑ Prof Katja Koeppel (right) has a first look at Fushan



↑ Prof Gerhard Steenkamp (back, middle) is busy performing root canals on Fushan while Dr Annette Roug (right) is monitoring the animal



## Veterinary Science

# Faculty's OVAH acquires its first MRI scanner, the first of its kind in Africa

By Prim Gower

The Onderstepoort Veterinary Academic Hospital (OVAH) of the University of Pretoria's (UP) Faculty of Veterinary Science has acquired its first magnetic resonance imaging (MRI) scanner. This means that the hospital now no longer has to make special arrangements with human hospitals to perform MRI scans.



↑ Wiskey the dog is being prepared for a scan with Sr Sinazo Nikelo assisting.

'In South Africa, the use of MRIs for diagnostic purposes is limited to small animals, and most MRI scans are done in human facilities by special arrangement,' said Dr Paul van Dam, Director of the OVAH. 'An MRI scan takes 45 minutes or longer, which limits the number of cases that can be referred. With our own MRI scanner, we can now do scans at any time of the day, on-site, without the additional time to travel to another facility. An added advantage is that our MRI scanner will be the only high-field MRI in South Africa and Africa with image acquisition optimised for veterinary patients.'

MRI scanners differ in strength in terms of the magnetic field that is used, which is rated in Tesla (T) units. Stronger magnetic fields make for faster examinations, with greater detail and clearer pictures compared to lower-strength units. 'The new MRI scanner at the OVAH is a 1,5T unit, which is believed to be the strongest unit in veterinary use anywhere in Africa,' Dr Van Dam said. 'The unit has the biggest diameter available, which allows us to scan the bodies of the largest dogs and many other animals, including wildlife such as big cats and great apes. We can also scan the limbs and necks of larger animals like horses on a purpose-built (and locally designed) table.'

MRI scanners have been used in human medicine since 1977, and have been used in veterinary medicine since the mid-1990s. MRI imaging is the diagnostic method of choice when there is low contrast between neighbouring tissue types. This includes the brain—where the MRI distinguishes between grey matter, white matter, nerves and cerebrospinal

fluid—as well as the locomotor system, where it can distinguish between muscle, tendons and ligaments surrounding joints, joint fluid and joint cartilage.

**'By providing excellent images of soft tissue, MRI scans enable the clinician to make an accurate and often early diagnosis, allowing properly targeted treatment plans,'**

said Dr Van Dam.

'The acquisition of the MRI scanner provides the hospital with a comprehensive set of imaging modalities including conventional radiographs [X-rays], ultrasound, scintigraphy, computed tomography [CT] and now

magnetic resonance imaging [MRI],' said Professor Vinny Naidoo, Dean of the Faculty of Veterinary Science at UP. He explained that the MRI scanner was made possible in part by a generous bequest from Miss Betty Noakes, who left a large part of her estate to the OVAH to be used for the benefit of animals. 'We trust that the MRI will indeed play a large role in improving the life of our patients.'

Prof Tawana Kupe, Vice-Chancellor and Principal of UP, who officially opened the new facility on 26 July 2021 during an online event, also acknowledged the importance of the new acquisition. 'Over the years, the OVAH has distinguished itself on various levels. It has now begun another exciting chapter in the faculty's more than 100-year history—the beginning of a new era in service delivery and patient care. It reinforces the hospital's invaluable role and position as the country's leading veterinary hospital.'



↑ Lulama Nsele (student) with Bear, a Yorkshire terrier and the first-ever patient in the MRI facility

## TuksSport

# TuksSport High School is producing world-class athletes

By Ms Hettie de Villiers (Principal of TuksSport High School)

If the names Tatjana Schoenmaker, Gift Leotlela, Michaela Whitebooi, Clarence Munyai, and Sox Sakwawana sound familiar, it is because you might have seen them during the July television broadcasts of the 2020 Olympic Games. All five of them are TuksSport High School alumni.



### Tatjana Schoenmaker wins gold and sets a new women's 200m-breaststroke world record

On Friday, 30 July 2021, Tatjana Schoenmaker (a TuksSport High School matriculant and TuksSwimming Academy graduate), won the women's 200m-breaststroke final with a world record time of 2:18.95 at the Tokyo 2020 Olympics in Japan.

The Tuks-based swimmer broke the Danish swimmer, Rikke Møller Pedersen's time (2:19.11) that was set in 2013 at the World Aquatics Championships.

The 2020 Olympics was 'our' best Olympics! This primarily was because Tatjana Schoenmaker made the TuksSport High School and the whole South Africa proud, by bringing back both a gold and a silver medal! For good measure she also set a new world record in the 200m breaststroke.

Her performance made people curious about what journalists referred to as the 'high-performance school' or merely 'the sports school.' But 2021 wasn't the first-time learners from TuksSport High represented the country at the Olympic Games. Since 2008, one or more

TuksSport athletes had been part of the prestigious Olympic Team, often while still at school.

The Olympic Games are not the only platform where our learners excel. During the World Junior Athletics Championships held in Kenya in August 2021, the U/20 relay team set a new world record in the 4 x 100 metres event.

Two of the four athletes, Benjamin Richardson and Mhlali Xotyeni, are currently in Grade 12 at TuksSport High, and a third athlete, Sinesipho Dambile, an alumnus.



↑ Tlotliso Gift Leotlela



## TuksSport

One might believe that TuksSport High School is only about sport when hearing the many success stories.

While sport is why we have individualised our school the way we have, we remain, in essence, an academic school and are proud of the school's academic record. Until 2020, TuksSport High School achieved a 100% pass rate for fourteen consecutive years. The 2020 matric exemption rate of 89% tells it all.

One might ask, what makes TuksSport High School different? The feeling of walking into another school has much to do with the arrestingly modern, blue building situated on the Hillcrest Campus of the University of Pretoria. But the uniqueness of the school does not lie in the untraditional look and feel of the school.

Neither is it the subject offering. The Further Education and Training (FET) subjects on offer are similar to those at other schools: Mathematics, Physics, Life Sciences, Accounting, Business Studies, Tourism, Geography, History, and Classroom Assessment Techniques (CAT). The medium of instruction is English. The first additional languages offered include Afrikaans, Sepedi, and IsiZulu.

The *vive la difference* lies in the people. The learners share a mindset and goals—and they live out their passion for their sport by leading disciplined lives and putting in many hours of hard training. The teachers, coaches, and sports scientists not only understand this but share a passion for excellence. And that is why learner athletes at TuksSport High School are held in high esteem on the sports field, in the gym, and the classroom.

The school's vision is to provide a supportive and flexible learning environment to talented athletes of all sports codes. But people can only realise a dream when they believe and share the vision and are willing to live by TuksSport High School's motto – *The Will to Do and the Heart to Win*.

**Gold medals aren't really made of gold.**

**They're made of sweat, determination, and a hard-to-find alloy called guts.**

– Dan Gable



↑ 1. Clarence Munyai, 100m sprinter 2. Tlotliso Gift Leotlela 3. Swimming coach, Rocco Meiring 4. Michaela Witbooi, Judo athlete 5. Sokwakhana "Soks" Zazini 6. Sinesipho Dambile

### Contact information

Stephanie Hibbert Tel +27 (0)12 484 1790 | Email [stephanie.hibbert@hpc.co.za](mailto:stephanie.hibbert@hpc.co.za)  
Regina Malope Tel +27 (0)12 484 1780 | Email [regina.malope@hpc.co.za](mailto:regina.malope@hpc.co.za)  
Di Reid-Ross Tel +27 (0)12 484 1786 | Email [di.reid-ross@hpc.co.za](mailto:di.reid-ross@hpc.co.za)





“

An obstacle is an illusion that something is impossible, but a challenge is something that may be difficult to achieve, but is 100% possible.

”



## TuksSport

# Blignaut is one of SA's rising sports stars

By Wilhelm De Swardt | Photographer: Reg Caldecott

The 21-year-old Kyle Blignaut proved at the Tokyo Olympic Games that he is one to watch for the big moment with his 6th place finish in the shot-put final.

It was a truly remarkable performance. Blignaut was one of only two South Africa track and field athletes who qualified to compete in the finals in Tokyo. Akani Simbine finished fourth in the 100-metres race.

The big man, Blignaut, who is 1.95 metres tall and weighs 148 kg, also made history by being only the second South African shot putter to compete in an Olympic final. Janus Robberts did so in 2000 in Sydney. He finished 7th.

Blignaut let rip with a 21-metre effort in the Tokyo final, ensuring that he can lay claim to being one of the top six best in the world.

Blignaut said a year ago he would have been happy if someone told him that he was going to finish sixth at the Olympic Games, but things had changed.

'My coach and I are very ambitious. Every time I achieve a goal, it is time for a new challenge. Initially, the plan was only to qualify for the Olympic final. But once I had done so, the aim immediately became to see how close I can get to win a medal.'

'I am a very competitive person. It has to do with the way I grew up. As a family, we always had some sort of competition going. It has stood me in good stead. When I throw, it is always a 90% plus effort. I think it is essential to do so. You got to condition your body to be ready for when you need to step up.'

According to Blignaut, his coach, Pierre Blignaut, is the one who deserves all the credit for what he has achieved.

'Although Pierre and I are not related, it feels like he is family. He is the one who



'I am a very competitive person. It has to do with the way I grew up. As a family, we always had some sort of competition going. It has stood me in good stead.'

made me believe nothing is impossible and taught me that shotput is 65% good technique and 35% brute strength. Jaco Engelbrecht, a former shotputter, also inspired me a lot,' the Tuks-based athlete said.

He played rugby for a while at school, but he realised that the tape measure is fairer when judging performances. That is why he chose to stick with athletics. In 2018 he won gold at the World Junior Championships in Finland. This season he won gold at the South African Senior Championships and the South African Universities Championships. He also improved his best distance to

21.21 metres. Only Robberts (21,97 metres) and Orazio Cremona (21,1 metres) ever threw further.

Blignaut is currently registered for the Higher Certificate in Sports Sciences.



**TuksSport**

**TuksSport Switchboard:**  
+27 (0)12 420 6060  
(07:30-18:00, Monday-Friday)

## TuksSport

# Mohale says her mother's advice is the reason she is an Olympian hockey player

By Wilhelm De Swardt | Photographer: Reg Caldecott



'My mother, Mpho, is my role model. She is an inspiration and has taught me to be independent. My mother is unafraid of standing up and speaking out if she believes in something. She taught me to never buckle in what is perceived to be a men's world. She has always encouraged me to fight for what I want in life.'

When Lerato Mohale was a young girl, her mom would say, 'Bophelo ke ntwá,' which in Tswana means *life is a fight and struggle*.

It inspired Mohale to work harder in everything she did, and her tenacity is what ultimately led to her becoming an Olympian hockey player.

Mohale, who is a 21-year-old BEng (Civil Engineering) student at the University of Pretoria, made her debut for the Proteas at the Tokyo Games. To her it felt as if she was rushing in where angels fear to tread, but she loved it.

'To be at the Games was an incredible experience. For years I watched international sports stars on television and then suddenly I had the opportunity to rub shoulders with some of these

heroes; they are athletes who have inspired and motivated me. It was pretty crazy! What I will remember fondly is the way in which the Japanese went out of their way to make everyone's Olympic experience remarkable.'

Things did not go as planned for the South African women's hockey team who played on Astroturf. They lost all their games.

'We were the most inexperienced side, and unfortunately we are not able to play internationally for nearly eighteen months. Still, I was able to earn my first cap playing against excellent teams. The experience was an eyeopener and it will stand us in good stead for the future. We need financial support and more opportunities to play.'

As a child in Klerksdorp, she loved football and never missed any opportunity to kick a ball around. 'I played with boys mostly but

found I could out-dribble the best. Unfortunately, there were no opportunities for girls to play football in Klerksdorp.'

Then someone suggested that she take up hockey instead, because it was like playing football with a 'stick'. She loved it, and hockey offered her the opportunity to play competitively. Mohale was selected for the South African under-18 and under-21 sides.

'I still watch a lot of football. Lionel Messi is my hero. It is genuinely inspiring to watch him play,' the Tuks player said.



#### TuksSport Switchboard:

+27 (0)12 420 6060  
(07:30-18:00, Monday-Friday)



TuksSport

## Mahlangu set his sights on winning a gold medal in the 200 m at the Tokyo Paralympic Games

By Wilhelm De Swardt | Photographer: Reg Caldecott

Ntando Mahlangu has achieved more in his 19 years than most people would in a lifetime. He matriculated at the Afrikaanse Hoër Seunskool in Pretoria.

In August South Africa's 19-year-old long jumping sensation, won gold in the T63 event with a world record effort of 7.17 m. He also won the 200m in a time of 23.59s.

Mahlangu's performances are truly inspiring, considering that for the first ten years of his life, he was in a wheelchair owing to a condition called hemimelia. He got around either by wheelchair or on his hands and knees. In layman's terms, it meant that from birth, his legs had not fully developed below his knees. Nine years ago he made the decision to amputate the legs that were holding him back.

His life changed in 2012, when Jumping Kids, which is a charity that helps children with disabilities in South Africa, offered to assist him with prosthetics to walk.

When he was 14, he won a silver medal in the 200 m at the 2016 Paralympic Games in Rio. After the Games, he was forced to take a sabbatical because of the impact long jumping had on his lower back.

In 2017, he won a silver medal in the 200 m at the World Championships. Two years later, he was a world champion. This year he set a world record. Mahlangu will get faster and better in the years to come and I believe that

countless records will tumble over the next 10 years or so. If nothing unforeseen happens, the Tuks-based athlete might win a gold medal during the Tokyo Paralympic Games 200 m.

Mahlangu does not allow himself to get distracted. His focus is always on the present moment. When competing in the long jump, only one thing matters: he does his best and tries to win.

Mahlangu has got a personal best distance of 6.90 m. It compares favourably to what the best in the world are jumping.

**'I enjoy what I do. It pleases me if my jumps get my competitors riled up. At every Olympic Games, there is always one athlete that causes a major upset. Maybe it is going to be me. I think I have a fair chance of winning the 200 m.'**

Breaking the world record by running 22.98 s in Gqeberha this season was a confidence booster. A week later, at Tuks, I ran 22.88 s, which would have

been another world record had I not stepped outside my lane.

I love running. Yet, when I am running, I do not hear people cheering me on. I am alone on the track for those seconds and it is a fantastic feeling. I know I have run a good race when my blades "flash" past my ears,' he says with a twinkle in his eyes.

He made the most of the opportunity. Mahlangu has great respect for the senior athletes of the 2016 Paralympic team. 'Guys like Charl du Toit, Mpumelelo Mhlongo and Arnu Fourie took me under their wings and guided me. I will be forever grateful for what they did. The time will come when I will be the senior athlete and hopefully, I too will be a role model. Of course, I am also very grateful to my family and friends who always encourage me. I don't think people realise what it means when you got a disability, and people believe in you. The words: Don't worry, you can do it, you just got to believe it, can change a life.'



**TuksSport**

**TuksSport Switchboard:**  
+27 (0)12 420 6060  
(07:30-18:00, Monday-Friday)

## UP residences

# House Asterhof is a residence like no other!

By Jabulisile Zuma and Akudzwe Mhangami

House Asterhof! The first word that comes to mind is ‘Phenomenal!’ . 95 years ago, Asterhof became one of the first significant representations of women as multifaceted beings who, in this context, can academically achieve excellence and compete in a global space.

When the residence was established by the University of Pretoria, it became a beacon of hope for many women, as it was the first women’s residence created at the University of Pretoria. House Asterhof’s annex, Vergeet-My-Nie (VMN), opened its doors in 1926. It was then known as Dames Tehuis. The students soon called it ‘*Die Fant*’, referring to the proverbial ‘white elephant’, as they thought there would not be enough ladies to fill such a big building.

A miracle occurred in the 1950’s when Asterhof and ‘*Die Fant*’, after being rivals for many years, merged into one residence known as House Asterhof. The building formerly known as ‘*Die Fant*’ was renamed Vergeet-My-Nie (literally: Forget-Me-Not).

Now, more than 90 years later, close to 300 ladies occupy both VMN and Main Building. In 2013, Main Building was officially renamed as Forever Yours (FY), to remember our proud history as the oldest ladies’ residence and the only residence with two buildings. Asterhof has, over the years, become a home for those who aspire to be more than what the world has historically told women they could be.

Asterhof seeks to create a home away from home, where a formidable

sisterhood is formed and where an environment that facilitates and encourages the holistic and optimum development of our young women in residence is embraced. An environment in which women understand the remarkable ability they have to be the leaders and changemakers of our world. It is already folk legend that we are home to future stars.

In the famous words of Tata Nelson Mandela,

**‘Education is the most powerful tool, you can use to change the world’.**

Asterhof celebrates that tool by providing a home for women who have chosen to be educated so they can become the next generations medical doctors, lawyers, engineers, educators, social workers, and historians. Amongst many strategies, we have created an academic mentorship system, which is targeted at assisting those who may be struggling to cope in certain subject areas, in order to support them and ensure their success.

Our residence not only caters for academic excellence, but fosters an environment that allows for personal

growth. We teach values of dignity, discipline, and diversity, and the spirit of standing tall, facing and conquering adversity. Through traditions such as ‘Hope week,’ we gather as young women in the residence and ignite hope within one another by sharing our dreams and goals, inspiring individuality and confidence within the women in residence, and reminding one another that what we hope to achieve is possible.

The establishment of committees in residence to assist the House Committee has also been a platform in which women in residence who do not serve in the House Committee can serve, contributing to the development of their leadership skills. These different spaces simultaneously allow for the development of camaraderie amongst the women in residence and gives them an opportunity to create lifelong friendships.

Asterhof carries generational sentimental value—young women born today will grow up to know of a residence that showed women it is possible to become whoever you aspire to be.

Instagram @astergram\_1926  
Facebook Asterhof Residence  
Youtube Asterhof Residence





## UP residences



⬆ Asters competing in the 2018 "Step it Up" show in which they placed first.



⬆ Semi and Senior 'Painting the Blad' day



⬆ Sterretjies participating in the 1nSync competition



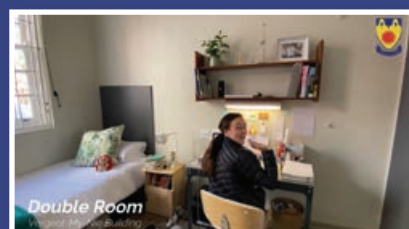
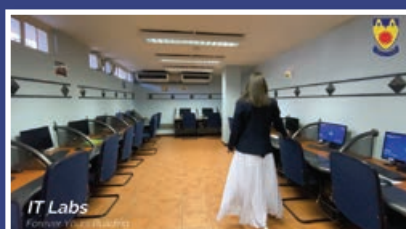
➡ Corridor Games Night at the residence



➡ Our annual Miss and Mr Asterhof is a highlight event



⬆ Asters participating in the TuksRes Athletics Met



⬆ Asterhof has a study hall for students to bring in their own laptops to study, or alternatively just to work through their written work. The IT labs are also available for those who may not have their own computers. In the rooms, there are study lamps and LAN cables to allow for students to work from their own rooms.



## UP residences

# Tirisano, a house where integrity matters

By Tshediso Monareng



House Tirisano is a residence situated at the heart of the Groenkloof Campus which was established in 2001. It prides itself in values such as respect, integrity, and participation, to name a few. The residence is the only male residence out of the four residences surrounding it—you can imagine the attention it gets! One of the most impressive aspects is sports, particularly soccer!

The soccer team has been excelling in the TuksRes league for the past couple of years, and TuksSport recently gave them the title of Tuks Promotional team. The house also has a clubhouse where indoor sporting games are played, offering the students an important space to relax on Fridays after a long week of school.

As they say, 'all work and no play makes Jack a dull boy'. So, what contributions has the house made to students' academic success? The house is steadily moving towards the 4th Industrial Revolution, without neglecting or losing sight of the importance of blended learning, and has implemented several ways to support the digital aspects of blended learning. It is equipped with quality computers and a stable, high-speed internet connection—perfect for

those students who prefer computer-based learning.

The Academic committee of Tirisano has also implemented a volunteer project where senior students help junior students in their courses, offering mentoring and tutoring and providing soft copies of past exams for the purpose of revision. The house has also created an online academic session, scheduled to happen annually, where knowledgeable people are invited to share their experiences of blended learning. This will help our residents greatly, as evidenced by the success of the 2021 event.

The other side of blended learning is the classroom experience. The academic committee of the house has been conducting compulsory study sessions, particularly during test and exam weeks. These study sessions are moderated by the House Committee, and may comprise only students of the residence, or students of the residence and external people who have been invited to assist in modules which are more challenging.

Student wellbeing is paramount to the success of learning! The house came up with ideas such as Legotla, where

the men of the house discuss personal issues, and wellbeing sessions where we invite guest speakers, such as Malaika wa Africa in 2019. Wellbeing sessions are encouraged, as the house believes that a well-healthy mind is an academically-fit mind.

Every University residence has a unique culture, and House Tirisano is no exception. The most loved culture of the house is singing "Igwijo." This is when we meet on occasion and sing songs together. The songs we sing are deeply meaningful, pertaining to situations that we go through as men, which are often not discussed.

House Tirisano indeed feels like a home away from home. There are a lot of extramural activities, leadership opportunities, sports, and a lot more. No parent would worry about their children or regret placing them in such an auspicious house which prides itself on success and in shaping students to be adaptable in an ever-changing universe.

Instagram @housetirisano  
Facebook House Tirisano  
Email tirisano@up.ac.za



## UP residences



↑ Accolades won over the years



↑ Tiriso Soccer Champions



↑ A cultural representation of our house, on stage

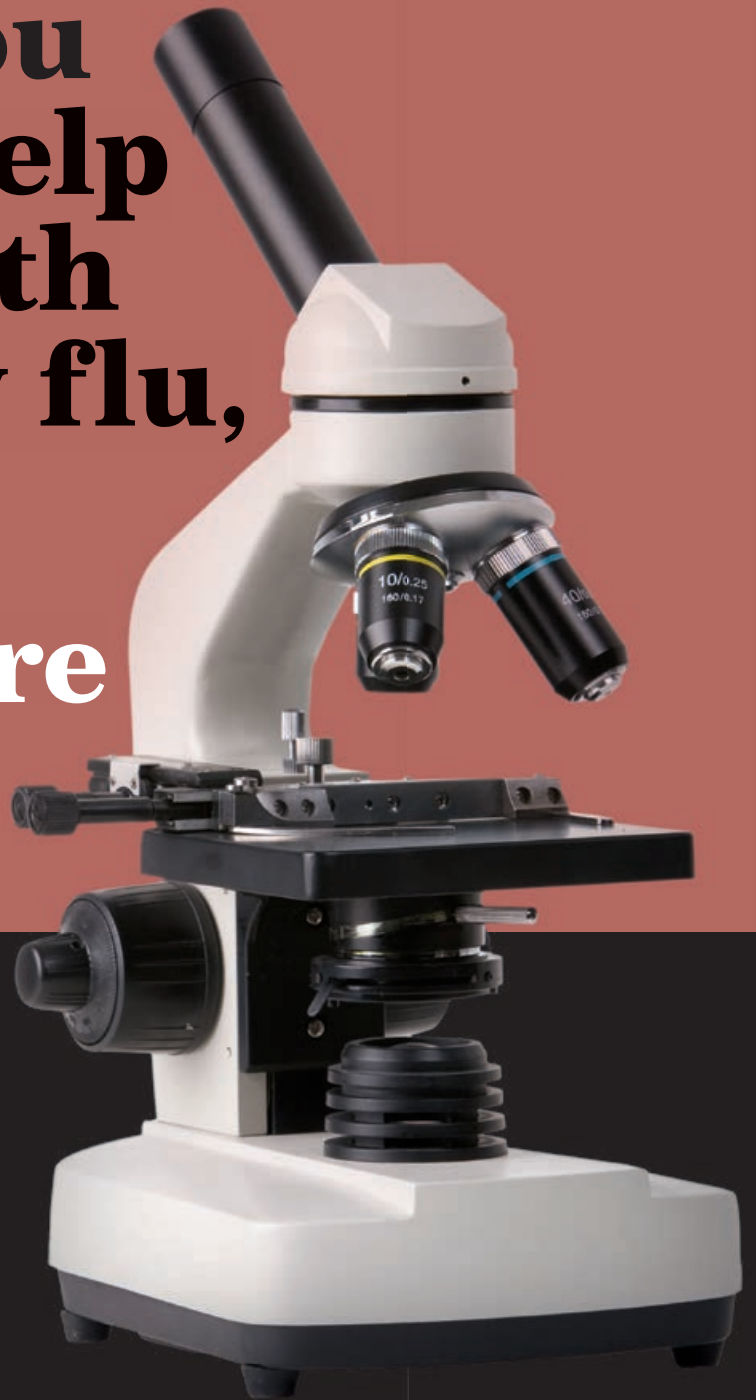


↑ The social life at Tiriso thrives



↑ The Tiriso residence building

**Whether you  
want to help  
people with  
the daily flu,  
or one day  
find the cure  
for all flus,**



**CareerXplora will help inform  
your future choices.**

Chat to one of our career guidance advisors today.  
**Partner for opportunity.**

For more information visit  
[www.brainwavecareers.co.za/careerexplora](http://www.brainwavecareers.co.za/careerexplora)