



Gaudeamus igitur
Antiquos dum sumus
Fuit ut in m... juu
Fuit ut in m... juu
Nos habebit m... mu

UNIZULU empowers educators to boost district maths and science pass rate

Top accolade for nanotechnology academic

MORE than 100 educators who attended the recent Maths and Science Teachers Seminar, organised by the University of Zululand (UNIZULU), were not only empowered with innovative knowledge and new teaching skills to improve their learners' understanding of maths and physical science, but were also motivated to teach with vigour and passion as the future of the country depends on it.

The two-day workshop was held at the UNIZULU Science Centre in Richards Bay. It was attended by representatives from the KwaZulu-Natal Department of Education, UNIZULU academics and King Cetshwayo District Municipality teachers.

In her address, Nokuthula Ndaba, a lecturer in the Faculty of Education, said: "As science and maths teachers, you are the pride of the nation. Whenever we see maths and science teachers, we see individuals who are going to multiply themselves."

As mediators of learning, she said the educators hold the key to their learners' grasp of the two subjects. She advised them to employ various teaching methods to simplify the contents of their subjects to accommodate the different kinds of pupils in their classes.

She emphasised that the teachers should use correct assessment methods because learners "must be able to apply" what they have been taught.

Ndaba commended the teachers for taking the initiative to attend the work-



Taurai Khondo, mathematician and owner of Kondo School of Excellence, had maths teachers captivated during the maths training session.

shop because one of the roles of teachers is to be life-long learners and researchers. She said: "Humans are born with that insatiable quest to learn. The only way to quench that thirst is through education. Even in my 50s, I am still capacitating myself. Be the kind of teacher who trains themselves to meet the competitive edge of our changing world."

In trying to help teachers meet the demands of the modern era, mathematician and owner of Kondo School of Excellence Taurai Kondo and David Phipson, a physical science teacher and owner of Flipping Education NPC, were invited to conduct parallel training sessions.

The educators were grouped into two teams, based on which of the two subjects they teach at their respective high schools.

The overall objective of the training was for teachers to acquire knowledge and skills they could, in turn, impart to their pupils, thus contributing to the improvement of the pass rate in these critical subjects.

According to Dr Derek Fish, the Director of the UNIZULU Science Centre, this year's seminar was a "resounding success".

He said: "When the teachers were asked if they would like to have the

seminar again next year, they (said) they would like it again next term.

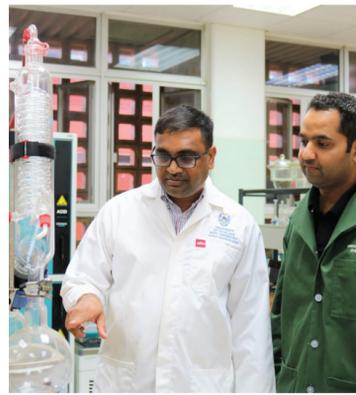
"I believe an effective 'tripartite alliance' has been formed between UNIZULU, the UNIZULU Science Centre and the Department of Education, which will benefit the King Cetshwayo District in the future," he said.

The teachers promised to work with their clusters and advisors to make an impact on their learners, which they hoped would improve the results in this year's matric examination.

They expressed appreciation of the effort UNIZULU made in organising such an event.

PROFESSOR Neerish Revapasadu, an academic in the University of Zululand's (UNIZULU) Nanotechnology Department, has been identified as the top intellectual property creator for the institution by the National Intellectual Property Management Office (NIPMO) and will receive a certificate of acknowledgement on Thursday, March 28.

The award is being made based on Prof Revapasadu's research and innovation in the energy sector, which includes patents and disclosures regarding work that could have commercial viability. As part of the selection criteria, NIPMO assessed actionable disclosures made by the researcher between 1 April 2011 and 31 March 2018, also evaluating the practical application and social impact of his work. The award comes with a monetary contribution of R605 000 which will go towards driving the academic's



Professor Neerish Revapasadu and Dr Malik Khan, academics in the Department of Nanotechnology at the University of Zululand, are intent on bringing innovation which will solve the country's energy problems.

technologies from intellectual property creation to innovation as a product, process or service with impact.

Ecstatic, Prof Revapasadu said he is looking forward to receiving his award. He added that with the sponsorship, he is looking at first scaling up the material before possible commercialisation via a start-up company or licensing. "The intellectual property that we (Prof Revapasadu and Dr Malik Khan) have now has the potential for com-

mercialisation... We know that there is an energy problem so we are looking at renewable energy but we are working more in the space of energy storage and energy generation," Prof Revapasadu said.

The academic's award will be handed over by Mmamoloko Kubayi-Ngubane, Minister of Science and Technology, at the Saint George's Hotel and Convention Centre in Pretoria.

Science and Agriculture researcher shares findings on the groundnut leaf miner

Academic elected as President of SA Society for Biochemistry and Molecular Biology

THE beginning of March saw Professor Godfrey Zharare, an academic in the University of Zululand's (UNIZULU) Faculty of Science and Agriculture, deliver his long-anticipated inaugural lecture at the university's KwaDlangezwa Campus.

Prof Zharare joined a handful of other UNIZULU academics who have stepped up to the podium to deliver their lectures between August 2018 and March 2019.

His lecture was titled "Contributions to the Body of Knowledge of Groundnut Fructification, Calcium Nutrition and its Major pest, the Groundnut Leaf Miner".

Explaining the rationale behind his chosen research topic, Prof Zharare said the aim was two-fold.

Firstly, it is to highlight the contributions he has made to the body of knowledge on groundnut fructification, its calcium nutrition and the groundnut leaf miner.

Secondly, it is to suggest aspects of research other academics should focus on regarding these three areas.

The groundnut (*Arachis hypogaea L*) is an important food and oil crop grown in the tropics and subtropics, including South Africa.

He pointed out that the groundnut leaf miner in South Africa is a cosmopolitan species similar to the soybean moth in Australia and the groundnut leaf miner in India, all known by different names.

Although the three are the same organism, the one in Australia only attacks soya bean, while the one in India attacks groundnut, soybean pigeon pea, lablab and Lucerne and the one in Africa attacks groundnut and soybean.

According to the academic, this difference in host plant preference gives an opportunity to research on the genes that control preferences in insect pests.

Prof Zharare conducted his research in Manguzi, in northern KwaZulu-Natal, which is one of the hotspots for the groundnut leaf miner.

Findings from the research show that farmers in the area can escape the groundnut leaf miner if they plant their crops between June and October. Winter planting, especially in Manguzi, is



Professor Godfrey Zharare, the fifth academic to deliver his inaugural lecture at the University of Zululand.

possible because it is warm throughout the year.

On fructification, Prof Zharare's research in solution culture indicated that the element zinc is required in the pod environment of groundnut.

He also said that the solution culture studies indicated that groundnut has an optimal level of gypsum application above and below, which affects groundnut pod development and the filling adversely.

"Knowing this optimal level for a soil, farmers will be able to save a lot on the calcium (gypsum) fertiliser that they apply on the groundnut. They should not apply too much, otherwise they are going to have a decrease in their harvest. Farmers should also make sure that they have enough calcium applied to the groundnut so that the end result is also optimal," he said.

The second finding from the groundnut does not directly affect farmers, but

only affects breeders.

"We need to develop groundnut varieties that can tolerate low calcium in the soil. I discovered that groundnut pods excrete a large amount of the root-absorbed potassium through the young developing pods in exchange of hydrogen ion moving in when calcium is deficient in the pod-zone, but when calcium is present, the hydrogen influx is prevented and the potassium efflux is counter-balanced by influx of calcium," he said.

Prof Zharare added that it was the influx of the hydrogen ion that inhibited the development of the embryo in the seed when calcium was not enough in the pod environment leading to empty pods disease.

He also discovered that a variety that is resistant to empty pods excretes little potassium. He reckons more research is needed to follow up on this lead for breeding groundnut resistant to empty pods disease.

THE University of Zululand (UNIZULU) is proud to have Professor Abidemi Paul Kappo, an academic in the Department of Biochemistry and Microbiology, as the newly elected president of the South African Society for Biochemistry and Molecular Biology (SASBMB).

Prof Kappo, who will be serving a two-year term between 2019 and 2020, said he was honoured to be elected to this position.

He said: "It means that something good is happening at the University of Zululand and to be handed the reins of the society reflects the confidence that all biochemists, biotechnologists and molecular biologists in South Africa have in me. This means that UNIZULU is capable of great things."

SASBMB aims to promote scientific exchange between academics and students of biochemistry and molecular biology. This national non-governmental, non-profit professional society comprises all universities in South Africa, as well as research institutions such as CSIR, ARC and SAMRC.

As he takes over, one of Prof Kappo's plans is to help universities adhere to the standards, practices and quality assurance of biochemistry offerings in South Africa.

His vision is to make the society more inclusive and reflective of national demographics.

"I would love to make SASBMB a society where young scientists can meet, share their work and also build their own network. SASBMB has been in existence since 1970, my inclination is to see it being renewed on the international front," explained Prof Kappo.

The Dean of the Faculty of Science and Agriculture, Professor Nokuthula Kunene, congratulated Prof Kappo. She said it was an achievement not only for the faculty, but also for the university at large.

She said she was confident that under Prof Kappo's leadership, wisdom and guidance, SASBMB will achieve greater feats.

Meanwhile, Prof Kappo has recently returned from the University of Cincinnati Medical School in the US, where he spent a month in the laboratory of Prof Tom Thompson, working on the design and



Newly-elected SASBMB President and UNIZULU Professor Abidemi Paul Kappo during his visit to the University of Cincinnati Medical School, in the US, where he worked on the design and discovery of new anti-cancer drugs.

discovery of new anti-cancer drugs.

He also visited the Rochester Institute of Technology, with the view of starting collaborations with Prof Nun Thomas and Prof Andre Hudson in molecular immunology of cancer and structural determination of cancer proteins, respectively.

Prof Kappo currently supervises four

Master's and four PhD students. The four master's students and one of the PhD students will be receiving their qualifications during the forthcoming graduation in May 2019.

He enjoys supervising his students, but in between his busy schedule finds time to work in the lab on his own research projects.

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