

# FACULTY OF SCIENCE BIMONTHLY BULLETIN

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EDITORIAL



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Welcome to Issue No. 4, Vol. 6 of the Faculty of Science bimonthly bulletin. The second half of the year has begun with more teaching, learning and research activities in the Faculty. Students, in particular first year double-intake students were welcomed in College with orientation on Faculty programmes among other issues. The African Centre of Excellence in Internet of Things (ACEIoT) in which the Faculty of Science has partnered with University of Rwanda, kicked off on a good note when two Faculty members were awarded PhD scholarships under the ACEIoT project. Another ACE project running at College of Medicine also got introduced in the Faculty. On a similar note, the Faculty is pleased to report new projects in each of the

Issues of this Volume so far. We are happy to report a new project won under the Global Challenges Research Fund (GCRF) of the UK in collaboration with LEAD and University of Southampton. Check details in this Issue. In addition, the Faculty is also making strides in internationalization. During the past two months, the Faculty hosted international scholars while some faculty members travelled far and wide, some published in peer-reviewed international journals, and one got elected to lead an international professional society. Find out who and where in this Volume. The Faculty also consulted stakeholders on curriculum review and graduated 3 distinctions! These plus more stories await your reading in this Issue. Enjoy!

\*\*\*\*\*DEAN\*\*\*\*\*



Dean: Levis Keliyasi Eneya, PhD.



Pic.: Prof Nymann (seated, in black, holding a stick), a retired professor in Number Theory, and Ex-HoD Maths (1976-1978) recently visited the Department and Faculty, together with his entourage.

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## Kambombo Mtonga and Thoko Vallent Benefit from the ACEIoT PhD Programme



Pic: Kambombo smiles over tea as he eyes Kigali. ACEIoT PhD Programme beckons him.

ACEIoT has selected 15 candidates for PhD Studies in the fields of i) Embedded Computing Systems and ii) Wireless Intelligent Sensor Networks. ACEIoT project is a regional initiative to enhance higher education and innovative research capacity of the East and South African Region. The latest ICT technologies such as Internet of Things (IoT) have the potential to ensure success through an innovation-led pathway.

**Dr. Chomora Mikeka** supervises the partnership activities on the side of Faculty of Science at Chancellor College, UNIMA. Estimated funds of about USD 280,000 for 5 years time period are allocated to the Faculty of Science at Chancellor College, UNIMA for contributing in the above mentioned activities.

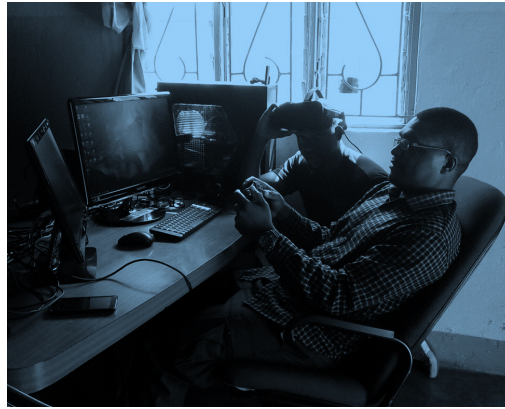


사진 왼쪽부터 시계 반대 방향으로 캄보모, 니헨다, 발렌트, 윤은준 교수, 김현성 교수

Pic: Vallent seated far right, poses with fingers placed on his black coding console, planning an abstract attack on ACEIoT PhD Programme.

## Computer Science and The English Departments Collaborate on a Virtual Reality Video Game

Inter-disciplinary research, and inter-departmental collaboration is encouraged at Chancellor College and Mr. Francis Kambili-Mzembe in computer science and Mr. Rodney Likaku in the English Department attended the New-Dimensions Workshop hosted by Electric South and Big World Cinema in Cape Town in South Africa at the end of last month, as they collaborate on a Virtual Reality educational video game project.



Pic.: Kambili and Likaku collaborate on VR.

New Dimensions works with African storytellers, artists, and programmers on Virtual Reality (VR) in the development and

production of their ideas, and introducing African and international audiences to African produced VR. Kambili-Mzembe (who will lead the programming) and Likaku (who will design the narrative) concept are to design a nonfiction narrative driven Virtual Reality video game on climate change for educational purposes and interactive learning.

## Fibonacci Research Group (FRG) trains faculty of science students in C-programming by Prof Hyunsung Kim of Kyungil University-South Korea



Pic: Kim of Kyungil

As part of its continued task of promoting research and innovation in the young science generation at university level,

### Fibonacci Research Group (FRG)

housed in the Department of Mathematical Sciences equipped computer programming skills to the students of the Faculty of Science.

The C-programming training workshop took place for three-weeks (8<sup>th</sup> to 24<sup>th</sup> August) by visiting professor, Prof Hyunsung Kim of South Korea. The training started with a presentation on "ICT & Culture of Korea" followed by practical training lessons in C-programming. The training aimed at beefing up programming skills to students in readiness for a joint "*Smart phone based education support system*" project with Prof Sandile Motsa of University of Swaziland and also "*Arduino based Internet of Things*" project with students of Kyungil University. At the end of the training, the students expressed satisfaction and happiness over learning such skills in addition to what they do in class. On his part, Prof Kim assured the students and the research group to introduce the group to his colleagues at Kyungil University as part of initiating research collaboration and exchange visits.

Pic (right): Prof Hyunsung Kim makes a presentation while part of the audience listens attentively.



## Dr. Evance Mwathunga Invited as Guest Lecturer at Stellenbosch and Wits in RSA

Dr. Evance Mwathunga, a geographer and planner in Geography and Earth Sciences visited Stellenbosch University as a guest lecturer and researcher in the Department of Geography and Environmental Studies for two weeks from 19 August to 2 September 2017. The trip was funded by the African Collaboration Grant 2017. During the trip he delivered lectures to postgraduate students; participated in the assessment of postgraduate students and attended research workshops.

Dr Mwathunga will also be visiting South Africa as a guest lecturer in a PhD in Urban Management programme at Wits University from 15 to 22 October 2017. In 2016, he also participated in the conceptualisation and development of the urban management programme at Wits University. The programme is funded by Wits - TU Berlin Urban Lab project hosted at Wits.



Pic: Dr. E. Mwathunga.



**Elias Mwakilama participates in CODATA International Training Workshop on Open Data for Better Science at CNIC in Beijing, China**

Following a workshop that took place at International Centre for Theoretical Physics (ICTP) in Trieste, Italy in August 2016, Mr. Mwakilama was again recommended for an assistant trainer position in R-programming at the 2017 CODATA international training workshop on Open data for better science which took place at Computer Network Information Center (CNIC) in Beijing from 10<sup>th</sup> to 21<sup>st</sup> July, 2017. The workshop brought together young scientific researchers across the globe (Africa, Europe, Asia and America) to learn computational and programming skills that would support the ongoing policy advocacy of making scientific data publicly accessed for further research by others and also for publication by data authors. During the training, different open data platforms in geophysics, biomedical sciences, and climate change were exposed.

In addition, Mr. Mwakilama was given a chance to participate in an “International Symposium on Open Data and Innovation: Vision and Practice” where he presented a paper on “Challenges & Successes of Open Data for Better Science in Malawi.”



Pic.: Part of the participants for CODATA workshop (Elias squats right in front)

Among other recommendations, for Malawi to succeed in making scientific data open for research and publication, the country needs to build capacity of young academic researchers to manage open data repositories and such data may need to be archived and accessed without any prohibition after intellectual property issues such as data authorship and publication have been fairly agreed upon. In addition, there is need for finding a common ground between academic interests, sponsor's mission and country's goals when it comes to making scientific data open and FAIR (findable, accessible, interoperable and reusable). In addition, faculty members should not only publish results but also publish “data” itself in international data science journals.

**Prof J. E. Nymann of USA (former Head of Dept.) visits Department of Mathematical Sciences**

Pic: Prof. Nymann giving a talk in the FoS Boardroom .

“*Madzi sayiwala khwawa*” is one famous Chichewa proverb that depicts the need for remembering remarkable places that we have gone through, more especially when such places made us move up the ladder to certain greater heights of achievements, successes or contributions. This has been exactly the spirit that was recently showed by Prof J. E. Nymann of USA who, together with his family, visited the Department of Mathematical Sciences during his summer break in July this year.

Prof Nymann is a retired professor in Number Theory who once served the department as Head from 1976 to 1979, just three years after the birth of University of Malawi. During his time, Prof Nymann introduced a number of courses in the department, more especially in the field of number theory which acts as basic building block for mathematicians working in fields of mathematics of security systems (cryptography). Upon his visit, Prof Nymann took himself backwards by discussing his two remarkable papers on “*On subsums of infinite series*” and “*On the Probability that  $k$  positive integers are Relatively Prime*”

with current staff in the department and his sons and grandsons who are also mathematicians.

Of interest was the latter paper, which showed the importance of interrelating different mathematical fields when one wishes to solve certain open problems in scientific research. Being a man of pure mathematics, Prof Nymann couldn't achieve some of his paper work without flexibly developing an interest in reading concepts of “probability” that are mainly found in statistics. In his final remark, he therefore, encouraged current members in the department to work collaboratively in research.

## Human Ecology Department Strengthens its Collaboration with University of Manitoba



Pic.: Professor Trust Beta presents before Faculty of Science staff in the senior common room.

Professor Trust Beta, from the Department of Food and Human Nutritional Science at University of Manitoba, visited the Human Ecology Department from 9<sup>th</sup> to 18<sup>th</sup> July, 2017. Prof Beta, is a research partner and collaborates with Dr. M. C. Katundu and Dr. V. U. Ndolo on two of their research projects namely MAFFA and OSISA SMART MAFFA. During her visit, the three worked on a new proposal to extend their activities under OSISA SMART MAFFA, which has since been submitted to OSISA for consideration, finalized a manuscript on Bambara groundnuts, soon to be submitted for peer review and also brainstormed on other research projects aiming at engaging with the food industry, so that their research works move from the lab into the shelves on the market through various food products that they may produce in the near future.

The Faculty of Science was also privileged to host a seminar presentation where Professor Beta talked about Cereal Phytochemicals and Health. In the seminar, Prof Beta invited other departments in the faculty to explore where they could collaborate with the University of Manitoba in the Department of Food and Human Nutritional Science.

A funding opportunity was also identified for a Master candidate.

## Introducing the African Centers of Excellence (ACE II) in Public Health and Herbal Medicine (ACEPHEM)

Mr. John Mponda from College of Medicine, on 3<sup>rd</sup> July 2017 made a presentation on ACE II project where he introduced ACEPHEM, to members of the Faculty of Science. Mr. Mponda informed members that the purpose of his presentation was to introduce ACEPHEM and kick off deliberations between Chancellor College and College of Medicine (COM). Chancellor College is among the many partners under this project.

ACEPHEM is currently being hosted at College of Medicine and COM will be coordinating activities under this project. He informed members that ACE II project has two main focus areas namely public health and herbal medicine and is being funded by World Bank.



Pic: Mr. John Mponda made a presentation on ACE II project where he introduced ACEPHEM.



## GES Holds a Stakeholder's Workshop to Review the Existing Master's Program



Pic.: GES Stakeholder's Workshop, Splendor Hotel, Zomba, 11<sup>th</sup> August, 2017.

The Geography and Earth Sciences Department in conjunction with the University of Illinois (USA) is implementing a Capacity Building in Hydro-geophysics (CBHG) project in the Lake Chilwa Basin with funding support from GWB.

As part of the capacity building initiative the project proposed to introduce a new Masters program in Hydrogeology. However, considering that there already exists another Master's program in Water Sciences at Chancellor College, it was proposed that the two activities be merged so as to come up with a hybrid waters resources program at Post-graduate level where issues in the proposed and existing master's program could be jointly taught. As a result of the foregoing, a stakeholder's workshop was called at Splendor Hotel in Zomba on the 11<sup>th</sup> August, 2017 to consider the nature of the existing Master's program and how activities in the CBHG project could be incorporated in the WRMG program.

The workshop was opened by the Principal of Chancellor College, Prof Richard Tambulasi who was also the guest of Honour. Other dignitaries included the District Commissioner for Zomba, Dean of the Faculty of Science, a Hydrogeologist from the Ministry of Water Development and a representative from World Vision (Malawi and faculty staff from Chancellor College. A total of 21 one participants attended the workshop. The workshop run for one day and the program included presentations from some stakeholders to highlight the nature of the existing initiatives and areas of need within Malawi's water sector and how a water sciences program could address those.

## Dr. Jupiter Simbeye Elected Next SUSAN Coordinator

Dr. Jupiter Simbeye has been elected the next SUSAN coordinator taking after Prof. Ntonghanwah Forcheh of University of Botswana. His election took place at an AGM in Lilongwe following a successful SUSAN conference at the Bingu International Conference Centre. The conference took place from 22nd – 24th August, 2017. The Sub-Sahara Africa Network (SUSAN) is a network of national groups (societies) of the International Biometric Society within Sub-Sahara Africa.

The network promotes the advancement of life sciences through development, application and dissemination of effective mathematical and statistical methods to its members and collaborating partners.

This includes applications in agriculture, medical and health research, infectious diseases, environment and ecology, climate, and other applied sciences such as the areas of statistical genetics and bioinformatics. Dr. Simbeye's term of office runs from 2017-2019. During his term of office, he wants to see the SUSAN membership doubling. He thinks this is achievable by first encouraging student membership which is free at the moment. He would also like to see enhanced network activities which should eventually culminate into another successful SUSAN conference in 2019 that will be hosted by the Medical Research Council of South Africa.



Pic.: Simbeye, jubilant.

## Mzuni Biology Students Oriented on DNA Basics



Pic.: Mzuni Students pose with DNA Lab Manager, Assoc. Prof. Changadeya.

Fifteen Mzuni students pursuing Bachelor of Education (Science) degree were introduced to the basics of DNA analysis at MBERU, Department of Biological Sciences by Dr. Wisdom Changadeya in July 2017. The students had been taught molecular biology theory and needed to experience hands on practical on DNA analysis hence their visit which span from 27<sup>th</sup> to 28<sup>th</sup> July 2017. In the laboratory, the students were introduced to DNA extraction, Polymerase Chain Reaction (PCR), Polyacrylamide gel electrophoresis and gel data scoring. Similar orientations have been offered to students from LUANAR and MZUNI for the past four years.

## Recent Publications

- Olugbenga Solomon Bello, Bukola Morenike Lasisi, Olamide Joshua Adigun and Vunain Ephraim. (2017) “Scavenging Rhodamine B dye using moringa oleifera seed pod”. Chemical Speciation & Bioavailability, DOI 10.1080/09542299.2017.1356694.
- E. Vunain: Mesoporous silica-based membranes for water and wastewater treatment–Overview, challenges and future prospects. In: Proceedings of the Expert Workshop “Water Security”, 15.-20.05.2017, Mekelle, Ethiopia (Ed: C. Kownje, S. Paré, B. Aswaf), Cuvillier Publ., 2017, pp 123-134; ISBN 978-3-7369-9588-8.
- Ndolo V.U & Beta, T (2017) The Nutritional and Nutraceutical Value of Wheat (Chapter 10): In Achieving Sustainable Cultivation of Wheat Volume 1- Breeding, quality traits, pests and diseases. Eds. Peter Langridge. Burleigh Dodds Science Publishing, Canada.
- Macpherson Matewele and Wisdom Changadeya (2017). Genetic diversity among Malawi grown local maize (Zea mays L.) genotypes using microsatellite markers. MAJANDS 2(1) 1-7.
- Milliward Maliyoni, Faraimunashe Chirove, Holly D. Gaff and Keshlan S. Govinder, “A Stochastic Tick-borne Disease Model: Exploring the Probability of Pathogen Persistence,” Bulletin of Mathematical Biology, Vol. 79, pp. 1999–2021, 13 July 2017. doi: 10.1007/s11538-017-0317-y

## Faculty of Science in Successful Project to Tackle Food and Water Security



A team of academics from the Natural Resources and Environment Centre (NAREC) in the Faculty of Science comprising Associate Professors Cosmo Ngongondo and Maurice Monjerezi, Drs Levis Eneya and Mangani Katundu, in collaboration with Prof. Sostien Chiotha and Mr. Mathews Tsirizeni of LEAD-SEA are part of a successful bid led by Professor Justin Sheffield of the University of Southampton. The team has secured £5m over four years from Research Councils UK (RCUK) to help improve food and water security for people in sub-Saharan Africa under the Global Challenges Research Fund (GCRF). The project, ‘Building research capacity for sustainable water and food security in drylands of sub-Saharan Africa,’ brings together researchers and scientists from universities in Kenya, Ghana and Malawi and United Kingdom. For details, click [the Announcement of the Chancellor College Website](#).

## Arrival of First Year Science Students (Double Stream) and of Graduating with Distinctions in Science

### Faculty of Science Welcomes First Years to the Faculty of Science

The waiting is over! First year students’ faces seemed to show this message when they reported for orientation on 10th July 2017. Chancellor College has taken a bold decision to enroll double stream of first year students (2016 and 2017 cohorts) to clear a backlog of students. The Dean of Science led Heads of Department in welcoming science students on 11th July and took them through Faculty programmes and course combination issues. He then encouraged them to work hard in class, tutorials and assessments to meet the Faculty expectations and requirements to proceed and later on graduate in colour like **Ellen, Ruth and Mphatso**. The Faculty wishes the first year students well and congratulations to **Ellen, Ruth and Mphatso**!

**Graduating  
with  
Distinctions**



Pic: DD with Ellen Gondwe, one of the three Distinction Award graduates in the Faculty of Science. The others are Ruth Vellemu and Mphatso Luwemba.  
Graduation date: 26/07/2017



Pic: Part of the first years listening to presentation by Dean of Science, Dr. Levis Eneya.