

# FACULTY OF SCIENCE BIMONTHLY BULLETIN

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## EDITORIAL



Faculty of Science,  
Chancellor College

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As we come full circle with this historic Issue No. 6, Volume 6, of the Faculty of Science bimonthly bulletin, our readership will probably fail to resist the temptation of theming this as an Internationalization Issue- what with about 60% of the stories being on international collaborations and partnerships! The Faculty is pleased to end 2017 on this note, fulfilling one of the pillars in the UNIMA Strategic Plan cascaded into Chanco and Faculty plans.

The year could not end any better for the Faculty than when one of its own got selected for the Next [Albert] Einstein Forum (NEF) Ambassadors class of 2017-2019; and when one of the infrastructural developments for it moved towards completion.

Moreover, during the period, the Faculty also interacted with government officials from three ministries through provision of services and exchange of knowledge. These and other stories await your reading pleasure. We are grateful for the encouraging positive feedback from our readers in the just ended year, and we trust that you will once again patronize our bulletin and walk with us in 2018, which promises to be more exciting.

Happy  
New  
Year!

**Dr. Levis  
Eneya  
(Dean)**



*Upcoming infrastructure at the Faculty of Science, Chancellor College, thanks to College leadership and Malawi Government.*

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### Faculty of Science Member Selected to be Among the NEF Ambassadors class of 2017-2019

"Today again, I am excited to announce a brilliant Next Einstein Forum (NEF) Ambassadors Class. The 45 selected Ambassadors, eighteen of whom are women, are helping to transform their local community through national campaigns like GirlsInSTEM, through research in renewable energy, food security, fin-tech etc. Beyond just theoretical research, our Ambassadors have developed impressive technologies from their research. We look forward to shining a light on their initiatives and technologies which we believe are solving local and global challenges," said Mr. Thierry Zomahoun, President and CEO of AIMS and Chairman of the NEF.

Chikondi Shaba is one of the 45 selected NEF Ambassadors. She holds a Bachelor's of Science in Chemistry, with a minor in Statistics and a Master of Science in Analytical Chemistry from University of Botswana. She is a Lecturer and Deputy Head of the Chemistry Department at Chancellor College of the University of Malawi. Among scientific activities that earned her the selection, Chikondi is among a team on the project "Hidden Crisis" where she is responsible for assessing water chemistry of groundwater.

She also leads an initiative, Malawi Girls in STEM, which aims at providing girls an opportunity to explore STEM fields, maximize their academic capacity and empower them to become citizens with a global perspective.

Chikondi has attended the SEANAC conference 2016 in Botswana, where she presented part of her thesis "GC-MS and LC-MS analysis of selected antibiotics in wastewater using a multivariate optimized dispersive liquid micro extraction technique.

Shaba was also part of a team that published in the International Journal of Mass Spectrometry on "Characterization of tenofovir, tenofovir disoproxil fumarate and emtricitabine in aqueous solutions containing sodium ions using ESI-MS, NMR and Ab initio calculations." For more information about the NEF Ambassadors Programme, visit <http://nef.org/ambassadors>. Congratulations Chikondi for the deserved selection!



*Pic: Ms. Chikondi Shaba, NEF Ambassador (2017-2019).*

## Flask Wall Mushroom Growing House Monitoring and Evaluation



*Pic.: Dr Placid Mpeketula, Principal Investigator for the Flask Wall Mushroom Project.*

It has been 6 months since the flask wall mushroom innovation project started. December 7<sup>th</sup> to 9<sup>th</sup> were the projects monitoring and evaluation period as such these three days had the flaskmush offices visited by guests, Dr. Ku McMahan, Kevan Hayes and Dr. Beverly from the Securing Water for Food (SWFF) from the USAID Washington DC offices. The guests visited some of the sites where the flaskmush has been constructed in Zomba, Chiradzulu and Chikhwawa districts.

On 7<sup>th</sup> of December the guests arrived at the flaskmush offices where they had talks with Mrs. M. Kumwenda and Mr. R. Mphuwa who are the projects Gender and Environmental Sustainability specialist and Finance and Microcredit officer respectively.

Afterwards, they had a brief meeting with the Dean of Science, Dr. L. Eneya where they had discussions on commercialization of the innovation at the end of the project.

The Dean indicated the Faculty's proposal to come up with a business plan for the project by April 2018 with support from the College and University management. The business plan should highlight how the project will be sustained in the long term after the end of donors support.

The meeting was followed by site visits in Naisi and Domasi areas in Zomba. These are farmers who have been trained in mushroom cultivation and have already started harvesting their mushrooms. On 8<sup>th</sup> of December, the SWFF team accompanied by the flask mush team visited two sites in Chiradzulu and one site in Chikhwawa. The SWFF team interviewed the farmers to have an overview of how the project is progressing. The monitoring and evaluation exercise was concluded with a phone call from the SWFF team leader, Dr. Ku McMahan who advised the flask mush team to put more effort in developing a business model, have a clear sense of market links and how to move the mushrooms to markets quickly.

### In pictures >>



*Welcome meeting in the Faculty of Science Boardroom.*



*PI in blue tie with Dean Science, specialists and SWFF visitor, Dr. Beverly.*



*Spawn growth inspection in the lab.*



*Visit to the villages where mushroom cultivation and harvesting is ongoing.*



*Dr. Beverly appreciates mushroom growth.*



## AfriCity Student Exchange Programme

LEAD, Chancellor College, University of Malawi; Rhodes University, South Africa; Sokoine University of Agriculture (SUA); College of Business Education (CBE) from Tanzania; and University of Erlangen-Nurnberg in Germany are implementing a four year (2017-2020) research project titled Adaptability, Food Security, Risk, and the Right to the City in Sub-Saharan Africa: Towards Sustainable Livelihoods and Green Infrastructure (AfriCity).



*From left to right: Maximilian Brönnner; Frank Chimaimba; Rebecca Chivundula; Dr. Dalitso Kafumbata; and Valerie Haas.*

The two main objectives of the project are to explore and understand social vulnerability and adaptability to environmental and resource change, with an emphasis on the issues of risk and food security, in sub-Saharan African cities; and to promote sustainable urban livelihoods and adaptability through understanding and communicating the right to the city with regards to the necessary green and social infrastructure. Among various activities, the project promotes student exchange visits to enhance transnational cooperation and networking of scholars among the project partners.

It is against this background that two Master's students from Germany named Max and Valerie visited Chancellor College from 26th October to 19th November 2017. During the visit, the two students interacted with Chancellor College lecturers and students; attended some classes at Chancellor College; visited a number of institutions including FRIM (Forest Institute of Malawi), and NAC (National Aquaculture Center). They also had some field excursions at Lake Chilwa attending social learning research meetings organized by LEAD and interacting with villagers at Naphambo Village responsible for Community Managed Forest. Two students from the Faculty are expected to visit Germany in the first quarter of 2018 on the project.

## Faculty Hosts an Exchange Student (Masaki Kawakami) from Japan

The Department of Biological Sciences recently hosted an MSc student from Ryukoku University, Japan, from August 2017 to November 2017.

During his stay at Chancellor College, Kawakami-san conducted field research work on mbuna cichlid ecology using SCUBA diving at Cape Maclear, Lake Malawi. His focus was on 'The importance of niche segregation for the coexistence of mbuna cichlid fishes in Lake Malawi' and he was being supervised by Dr. Bosco Rusuwa.

At the end of his research stay, Mr. Kawakami was happy with his stay, in particular, the research skills that he had acquired. Bidding him farewell on behalf of the office of Dean, the Faculty Senator, Dr. Victoria Ndolo appreciated the partnership between the two universities and hoped that the next visit will involve students from Malawi visiting Japan.



*From left to right: Dr. Bosco Rusuwa, Kawakami-san and Dr. Victoria Ndolo.*

## Faculty Members Participate at an Annual National Fisheries Conference



Delegates at the Annual National Fisheries Conference, Sun n Sand Holiday Resort in Mangochi.

Faculty of Science members, Dr. Mikeka, Dr. Changadeya, Dr. Kafumbata, Dr. Rusuwa, Dr. Ngongondo and Mr. Mazibuko recently attended *The 2017 National Fisheries and Aquaculture Forum* in Mangochi from 22<sup>nd</sup> to 24<sup>th</sup> November.

The meeting, whose theme was '*Advancing Resilience in Aquatic Ecosystems and Communities*' was convened by the Department of Fisheries and was opened by Hon. Joseph Mwanamvekha, MP, the minister responsible for Agriculture. At the meeting, Dr. Rusuwa highlighted the research contribution of Chancellor College in capture fisheries work and Dr. Ngongondo presented a hydroclimatologic analysis of Lake Chiuta for early warning lake-level forecasting. Mr. Mazibuko gave a talk on the conservation and management of freshwater ecosystems while Dr. Kafumbata presented a morphometric and growth performance analysis of wild and hybrid strains of *Oreochromis shiranus* (Tilapia fish).

In the picture, the Deputy Dean of Science, Dr. Chomora Mikeka confers with another delegate at the meeting.

## The NAREC Director Attended AU/NEPAD Water Centers of Excellence (ACE 2) Initiative Annual Meeting that was Held in Nairobi, Kenya from 14th to 17th November 2017

For the research centres within the SADC region, the Southern Africa Network on Water Centres of Excellence (SANWATCE), this year's meeting was mainly on joint planning of the implementation of regional Zambezi River Basin (ZRB) project (2016 - 2019) that focuses on the five thematic areas of:

1. Climate Change and Extreme Variability
2. Hydrology, Hydropower and Dams Optimization
3. Groundwater Hydrology and Quality
4. Water Gov., Cooperation and Information Systems
5. Agriculture and Water

In the regional project, NAREC is the lead coordinator on the *Agriculture and Water* component whose main objective is to characterise prevailing agricultural activities in the ZRB such as crops, livestock and fisheries spatial distribution, food security and vulnerability and competing water demands assessments for the various agricultural and non-agricultural activities with the aim of revealing information for future agriculture-water related potential developments in the region.



NAREC Director, 2nd from right, Dr. Jimmy Naman-gale, in a SANWATCE planning meeting.

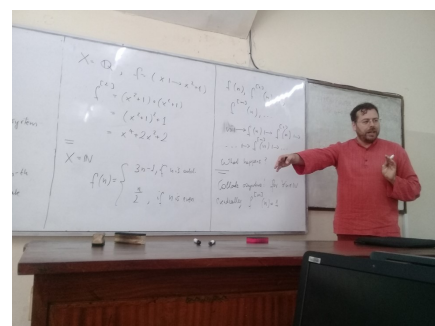
## The Faculty Welcomes New Academic Members of Staff from the UK and USA



Dean and Deputy Dean Science welcome Dr. Matthew Kittelberger in a meeting that took place in the Dean's Office on 19th December, 2017.

The Department of Biological Sciences has welcomed a new academic member of staff, Dr. Matthew Kittelberger, from the USA. Dr. Kittelberger is a Fulbright Scholar who will be in the department for about one year and will be responsible for Cells and Microscopy, Animal Physiology and Biochemistry courses. Dr. Bosco Rusuwa, head of the department recently called on the office of the Dean of Science to introduce this new member of staff as shown in the picture (left).

In a related development, the Department of Mathematical Sciences with support from International Mathematical Union (IMU) hosted Prof Ambrus Pal from the Imperial College London from 28 November to 8 December 2017 during which period he offered an intensive course to MSc (Mathematics) students and presented at a departmental seminar.



Prof. Ambrus Pal from University College London emphasizing a point during a departmental seminar on 1st December 2017.



## BRECCIA Project Team Attend an Inception Meeting

BRECCIA- Building REsearch Capacity for sustainable water and food security In drylands of sub-saharan Africa, a Global Challenges Research Fund (GCRF) project aimed at capacity building through collaboration, research and training is a partnership of 14 regional and international, academic and non-governmental organizations led by University of Southampton (US) and funded by Research Councils UK (RCUK). The Malawi team on the project comprising Drs Ngongondo, Monjerezi, Eneya and Katundu from the Faculty of Science, and Prof. Chiotha and Mr. Tsirizeni from LEAD joined the rest of teams at an inception meeting held at US from 13 – 17 November 2017. Apart from knowing and learning from each other, the teams discussed cross-disciplinary working including formation of working groups, high level research questions, research barriers and how to overcome them, as well as governance, administration and management structure for the project. The launch for the project in Malawi is planned for the first quarter of 2018.



*Malawi Team at the BRECCIA Project Inception Meeting (L-R): Drs Monjerezi, Eneya, Prof. Chiotha, Dr. Katundu, Mr. Tsirizeni and Dr. Ngongondo.*

## Dr. Levis Eneya Attends MASAMU and SAMSA 2017

From the BRECCIA meeting, Dr. Eneya proceeded to attend the Southern Africa 2017 Mathematical Sciences Association (SAMSA) conference and MASAMU Advanced Study Institute (MASI) in Arusha, Tanzania from 17 - 26 November 2017.

The primary goal of the Masamu Program (masamu.auburn.edu) spearheaded by Prof. Overtoun Jenda from Auburn University (USA, formerly a faculty member at Chancellor College) is to enhance research in mathematical sciences within SAMSA (samsa-math.org) institutions through promotion of international research collaboration. During the institute, participants worked in teams on problems and promising techniques and developed plans for publication and future collaboration.

Dr. Eneya and team worked and presented on Modeling the Electrostatic Interactions of the Mitochondrial DNA in Trypanosomes; as well as on the topic: Contact Tracing in the Modelling of Ebola.

The next MASI and SAMSA conference will be held at Botswana University of Science and Technology in November 2018; while Malawi is expected to host the same in November 2019. Staff and students from academic institutions in Malawi are encouraged to attend.



*MASI 2017 group photograph. On the far right, 2<sup>nd</sup> row is Prof. Jenda, and 5<sup>th</sup> from left on the 3<sup>rd</sup> row is Dr. Eneya*



*Pic.: From (L to R) Swaziland, Zimbabwe, South Africa, and Malawi.*

*The SAMSA conference also offered an opportunity for re-union as seen in this photograph where Prof. Eric Mwambene from UWC (2nd from right) formerly faculty member at Chanco joins old friends.*



## Faculty of Science Hosts a Team of Officers from the Ministry of Health

The Ministry of Health has been experiencing challenges in sending fly and parasite/tissue samples to WHO reference laboratory in Ouagadougou, Burkina Faso for PCR and ELISA examination. Following the challenges, the government decided to assess the laboratories within the country which could assist in processing epidemiological and entomological samples. Faculty of Science in particular Biology Department laboratories were on 29th November 2017 visited by a team of experts from the Ministry of Health led by Mr. L. Sitima to assess the equipment capacity and human resource that could be utilized in conducting various studies.

The officers were welcomed by Dr. B. Rusuwa, HOD of Biology Department. They were briefed and taken through the various laboratories in the Department to appreciate the space and equipment in these laboratories. Dr. D. Kafumbata, Dr. P Mpeketula and Associate Prof. Changadeya took turns to explain what goes on in each of the laboratories and they did emphasize on the Faculty's readiness to provide the much needed services to the Ministry as it (the Faculty) has the requisite expertise and equipment.



*Officials from the Ministry of Health and Faculty of Science team pose for a group photograph after touring the Biology laboratories.*

In his closing remarks, the Dean of the Faculty thanked the MOH officials for visiting the Faculty and indicated that the Faculty looks forward to feedback from, and working with the Ministry of Health which could in turn help to upgrade the capacity of the two institutions.

## UPGro Hidden Crisis Research in Phase 2 Activities: Detailed Hydrochemical and Residence Time Sampling to Investigate Local water Quality

Activities in Phase 2 include: dismantling of boreholes, examining the conditions and performance of pump, rising main and borehole using CCTV; detailed local physical hydrogeological investigations and pumping tests; detailed hydrochemical and residence time sampling to investigate local water quality; and finally examining local governance arrangements.

The research is funded by UK's NERC, ESRC and DFID and involves a consortium of leading academic and research institutions including British Geological Survey, Sheffield University, Cambridge University, Flinders University and ODI. The UPGro Malawi team comprises Dr. Evance Mwathunga, Dr. Theresa Mkandawire, Chikondi Shaba, Sembeyawo Banda and Patrick Makulini.



*Chikondi Shaba, NEF Ambassador performs detailed hydrochemical analysis on water samples from a dismantled borehole.*

## Viva Voce

### PG Studies in Science

#### Mathematical Sciences

*Master Thesis Defense (15 December, 2017 in the Senior Common Room): Biostatistics and Mathematics*  
**Harrid Bashir Nkhoma**, Application of hierarchical models in the analysis of antenatal care data: A case of Dowa district.

**Bamidele Oluyemisi Oguntinyinbo**, Modelling health seeking behavior among women for their under-five children with fever.

**Vincent Samuel**, Comparison of estimates and inferences from the frequentist and Bayesian survival analysis approaches for the analysis of time to STI infection in Mangochi District.

**Patrick Chidzalo**, An efficient operator splitting technique for option pricing under stochastic volatility.

#### Computer Science

*Master Thesis Defense (20 December, 2017 in the Senior Common Room): Informatics*

**Gloria Chisakasa**, Data and technical limitations in GIS implementation in Health Management: Case from Malawi.

**Chris Kulanga**, Investigating the Interoperability of Electronics HIS in Malawi: Case of Boabab Health System and DHIS2.

**Shadreck Kuleti**, Assessing the Adoption and Diffusion of Student Management Information Systems in Higher Education Institution in Malawi.

**Alima Jika**, Assessment of customer Satisfaction with mobile-based utility bill payments in Malawi.

**Eli Mapulanga**, Enhancing Asset Declaration Process through ICTs: Case of Malawi.

**Congratulations to all MSc students  
who presented and passed!**



*Pic.: Bamidele Oluyemisi Oguntinyinbo, Nigerian student defends his MSc (Biostatistics) thesis.*



*Pic.: Prof. Adamson Muula, one of the supervisors takes a picture of the impressive "voce" by Bamidele Oluyemisi Oguntinyinbo while Dr. Jimmy Joseph Namangale claps hands ensemble with the rest of the audience.*



## Induction Workshop for the Regional Early Childhood Development Trainers and Managers

On 4<sup>th</sup> December 2017, The Deputy Minister of Gender, Children, Disability and Social Welfare, Hon. Clement Mukumbwa opened the Induction Workshop for the Regional Early Childhood Development Trainers and Managers at the Little Theatre – Chancellor College, hosted by the Human Ecology Department. of the Faculty of Science.

In his opening remarks, the Deputy Minister emphasized that the training is very important as it is a milestone in the quest to reach out to more children in Malawi. A lot of attention is paid to Early Childhood Development in terms of survival, growth and education so that when they grow up they can actively participate in social economic development of the country.

On his part, the Principal of Chancellor College, Prof. Richard Tambulasi informed that the College is at the Ministry's service and that it is in advanced stages of developing a BSc in Early Childhood Development (ECD) and hoped that among the first students of the programme will be participants from this workshop.

The workshop was closed on 22nd December 2017 by the Minister of GCBSW, Hon. Dr. Kainja who hailed the long time partnership her ministry has with Chancellor College and expressed confidence that the training will go a long way in implementing the ECD policy that the cabinet approved in November 2017.



Group Photo: The Deputy Minister of Gender, Children, Disability and Social Welfare in the middle of the front line next to the Principal of Chancellor College in red tie.



The Minister, Hon. Dr. Esmie Kainja (in green) presents certificate of attendance to one of the participants supported by her Ministry's officials on her right, and the Dean of Science on her left as the Head of Human Ecology Dr. Khama Chibwana (2<sup>nd</sup> from R) and representatives from Action Aid and SAFE look on.

## Interior & Exterior Design Class in the Clothing and Textiles Lab

On 27<sup>th</sup> September 2017, Third Year students from Human Ecology Department, Interior and Exterior Design class displayed their projects. Some of the works of their hands can be viewed in the pictures below. The Dean of Science graced the occasion.



Some members of Human Ecology Department, students and the Dean appreciating some of the products produced by the 2017 third year Interior Design Class in the Textiles Lab.

## A Local Farming Practice Fails to Die: Case of 'mphanje'

Leadership for Environment and Development (LEAD) is partnering with Rhodes University to implement a research project titled Transgressive Social Learning for Sustainability Transformations in Times of Climate Change (T-learning). The project is funded by the International Social Science Council and it takes place in nine countries including Malawi. Each of the nine countries has unpacked T-learning according to their prevailing climate change circumstances. For Malawi, the research is taking place in the Lake Chilwa Basin involving women subjects following **informal learning** pathways under traditional farming practices like mphanje.



1<sup>st</sup> Step of mphanje (Collection and piling grass or any other plant residue).

### Faculty of Science Announcements

- ⇒ **New arrivals:**
  - \* Biological Sciences (Prof. Matthew Kittelberger, Fulbright Scholar from Gettysburg College, USA)
  - \* Physics (Innocent Kadaleka)
- \* **Assorted lab equipment received from Prof. Matthew Kittelberger, USA.**
- \* **Assorted lab equipment received in Physics Department from Dr. Raymond Penner, Canada.**
- ⇒ **Faculty of Science Board meeting: 11 Jan 2018 (Make sure to read draft Faculty of Science End of 2017 Report in advance)**
- ⇒ **EBAFOSA conference focusing on Climate Smart Agriculture (CSA): 18 January 2018**
- ⇒ **Training of Trainers (ToT) on ecosystem services for poverty alleviation: 27 February to 1 March 2018, Chanco**
- ⇒ **IoT Workshop in Malawi (March 2018), sponsored by ACEIoT (University of Rwanda) and hosted by the Faculty of Science, University of Malawi, Chanco**