



MAKERERE UNIVERSITY

**DIRECTORATE OF RESEARCH AND GRADUATE
TRAINING**

PhD Citation: 73rd Graduation

College of Humanities and Social Sciences (CHUSS)

The Principal College of Humanities and Social Sciences to present the following for the conferment of the degree of Doctor of Philosophy



Conferment of the
Degree of Doctor of Philosophy

ACHEN Stella
Socio-cultural Perspectives on Sexual and Reproductive Health of pastoral Adolescent Girls in Moroto district, Uganda

ACHEN Stella explored the socio-cultural perspectives on Sexual and Reproductive Health (SRH) of pastoral adolescent girls in Moroto district, Uganda. She found that socio-cultural issues affect the sexual and reproductive health of pastoral adolescent girls and access to SRH services. The study also established that the socio-cultural practices of bride capture and forced marriages lead to child and early marriages which result in poor SRH of adolescent girls. She argues that promoting SRH of pastoral adolescent girls requires an understanding of the socio-cultural issues that impact SRH and access to SRH services. She concludes that there is no one-size fits all approach that is appropriate to promote SRH of adolescent girls in all contexts. The study was funded by SIDA and supervised by Prof. Peter Atekyereza, and Prof. Charles B. Rwabukwali.



Conferment of the
Degree of Doctor of Philosophy

AUMA Theresa Odur
Customary Resistance to Marketization of Land: Lango clans in Northern Uganda

AUMA Theresa Odur investigated how clan leaders in Lango sub-region, Northern Uganda are resisting and regulating the expansion of land markets. She found that three factors that arose in the 1980s including the neoliberal economic transformation, the NRM/LRA war and the loss of cattle contributed to the current commodification of customary land. In response, clan leaders have treated this land market as an invasion into their territory and devised several mechanisms to regulate it. She finds that most of the land sales are distress sales resulting from poverty and this has forced clan leaders to play a contradictory role of both hindering and facilitating the land market. She argues and concludes that customary power of the clan has not been eroded but rather there is an ongoing centralization of power in specific clan leaders as a means to strengthen clan control over land sales. The study was funded by NORHED and supervised by Prof. Mahmood Mamdani.



Conferment of the
Degree of Doctor of Philosophy

EBOYU Francis
Integrating Cognitive and Sociocultural Perspectives to Enhance Learning and Performance among University Undergraduate Students and Employed Individuals in Uganda

EBOYU Francis investigated the influence of active learning and work based learning on creative performance and explored ways of integrating cognitive and sociocultural perspectives to enhance learning, skills transfer and performance of university undergraduate students and employed individuals. An analysis of participants short-life stories revealed that more competent colleagues supported learners to perform what they could not do on their own without support. In addition, students developed soft skills such as collaboration, self-confidence, teamwork and communication skills required in the world of work. Finally, employed individuals shifting from formal employment to self-employment unlearned unproductive behaviors and with support from colleagues learnt new productive skills. Need to streamline learning pedagogy so that it focuses on active participation to enhance skills transfer and employers create learning environments as part of work performance that encourage creativity. The study was self-sponsored and supervised by Assoc Prof. Julius Kikooma.



Conferment of the
Degree of Doctor of Philosophy

GEORGE Tee Forpoh
The Management of Conflict Over Trans-Border Natural Resources in The Mano River Basin, 2000-2015

GEORGE Forpoh Tee examined conflicts over cross-border natural resources surrounding Mano River Basin (Liberia, Sierra Leone, Ivory Coast and Guinea). Management that guarantees peaceful utilization for human and ecological development. The region experienced horrendous conflicts, decimated over 300,000 people and displaced millions. The study epistemological purpose understands this problem and proffered alternative solutions. Multifaceted factors hindering the MRU from fulfilling mandate. These included weak and ineffective institutional factors - policies, cultural practices, information exchange channels, decision-making politics, lack of support services, absence of uniform application of national, regional and international laws and failure to involve the people. The study therefore recommended the enhancement and bolstering of these institutions for the better performance of the MRU. The study was funded by Rev. Dr. Amos N. Chea Foundation and supervised by Prof. Murindwa Rutanga and Assoc Prof. Paul Omach.



Conferment of the
Degree of Doctor of Philosophy

KAIJABWANGO Clare

Non- Government Organizations' aid funded projects and Value for Money in Uganda.

KAIJABWANGO Clare examined the Value for Money that Non-Government Organizations aid funded projects bring to the development sector in Uganda. She assessed the effectiveness, relevance, cost and efficiency of NGO aid projects. Adequate assessment dictated the use of a mixed methods cross sectional design, which included a survey, Most Significant Change technique, Follow the Money method and Unit Cost Analysis to appraise three concluded NGO aid projects. The aid projects were found to be ineffective, uneconomical, inefficient and superficially relevant. An average of 78% of all project expenditure was on Non-Beneficiary costs. The minimal positive effects in the beneficiary households did not match targets committed to by NGOs at project inception. When appraised against different poverty indicators, the majority of project supported households were found to still be poor two years after project completion. The study was self-sponsored and supervised by Dr. Kafureeka Lawyer and Dr. Khanakwa Pamela.



Conferment of the
Degree of Doctor of Philosophy

KAMYA Bazilio

Contribution of Primary Education Policy Reforms in The Development of Uganda from 1894-2019

KAMYA Bazilio examined the contribution of primary education policy reforms in the development of Uganda from 1894-2019. Using qualitative approach, the study established that the different primary education policy reforms made substantial contribution to the development of Uganda including infrastructure development, increased school enrolment for boys and girls, vocationalisation of primary education, human capital development and reduced disparity between boys and girls. However, the quality of primary education still remains poor short of what is recommended by Sustainable Development Goal 4 “quality education; the East African Community Vision 2050; and Uganda Vision 2040. The study recommends that government should increase funding in research and development to review curriculum in relation to the required skills for human capital development; and also increase the budget for primary education for improved education service delivery. The study was funded by Andrew W. Mellon Foundation and supervised by Assoc. Prof. Godfrey. B. Asimwe and DR. Robert S. Esuruku.



Conferment of the
Degree of Doctor of Philosophy

KAMYA Innocent
Domestic Water Scarcity and Children Wellbeing in Rural Rakai, Uganda.

KAMYA Innocent examined the relationship between domestic water scarcity and childrens' wellbeing in Rakai district. Using a mixed-methods research design, the study established that children perceived wellbeing in terms of access to basic needs including safe water, good health, hygiene and physical appearance. Water scarcity exposed children to diseases, heavy workload, physical pains, unhappiness, compromised body hygiene, and constrained children relations with other people. Children adapted to the scarcity through existential and identity agency. Innocent proposes a natural resources endowment perspective in understanding child wellbeing including child work. He further recommends prioritization of improved access to safe water in the water-scarce rural areas as part of the National action plan on child wellbeing. The study was self-sponsored; and was supervised by Dr. Dauda, B Waiswa and Prof. Narathius Asingwire.



Conferment of the
Degree of Doctor of Philosophy

KEZIE-NWOHA Helen (Ms.)
Women and Post-Conflict Health Reconstruction: The Case of Puranga Sub-County, Pader District, Northern Uganda

KEZIE-NWOHA Helen examined how women's needs were incorporated in post-conflict health reconstruction in Puranga Sub County, Pader District, Northern Uganda. The study revealed that the approach to health reconstruction focused on infrastructure development, which downplayed the need to ensure women's needs are given consideration in planning and executing health reconstruction. Healthcare services lacked adequate health facilities, health workforce, supplies, and equipment. Health planning fits within the broader district planning, involves communities, and pays attention to the maternal health needs of women. However, there was no focus to ensure that facilities built provided for women's maternal health needs and closer to communities. There were not enough mental health specialists to support the mental health well-being of war survivors. Conflicts create a gendered impact on health care both at infrastructure and service levels, justifying women's participation in post-conflict health reconstruction. The study was self-sponsored and was supervised by Assoc Prof. Sarah Ssali.



Conferment of the
Degree of Doctor of Philosophy

KITAMBO Enos

Youth Perceptions on Youth Livelihood Programme as Social Entrepreneurship for Youth Socio-economic Empowerment in Gulu District, Northern Uganda.

Kitambo Enos examined the contribution of social entrepreneurship on youth socio-economic empowerment. Increased government investment in livelihood programmes nurtures research interest to understand whether and how these impact on target beneficiaries. Understanding youth perceptions of the impact of these interventions that target them is vital. Employing qualitative approach, Enos's research reveals that social entrepreneurship interventions have the potential to leverage youth empowerment if certain conditions are met. The findings that most youth interest groups have failed implied that youth were not fully prepared to take up investments in various sectors. The few successful YIGs had prior experience and commitment towards wealth creation. The study shows that politics, structural and institutional barriers continue to limit government-oriented youth livelihood interventions, and that funding alone is insufficient to stimulate social change. Youth require enabling environment characterised by holistic entrepreneurship training, critical awareness, mindset-change, and psychosocial support to guarantee social innovation and sustainable entrepreneurship. The study was funded by SIDA-Makerere Bilateral Research Corporation and supervised by Associate Prof. Julius Omona and Dr. Firminus Mugumya



Conferment of the
Degree of Doctor of Philosophy

LONGBA'AM Na'antoe Gloria

Historicizing Hybrid Conflict Management: State and Non-State Dynamics in Nigeria's Middle Belt 1957- 2018

LONGBA'AM Na'antoe Gloria examined the dynamics of hybrid conflict management in Nigeria's Middle Belt between 1957 and 2018. The study found that hybrid forms of conflict management were not a post-colonial development but dated back to the colonial period when the emirate system functioned alongside what the colonialists regarded as "pagan" administrative structures. Specifically, the study showed that despite being established along Westphalian liberalism, the Nigerian state evolved to institutionalise non-state actors, especially vigilante and hunting groups, to overcome security services' personnel and funding shortcomings. The research concluded that hybridity should not be romanticised despite the few successes recorded. The inconsistency between policy and practice has hindered the effectiveness of hybridity in Nigeria's Middle Belt. Especially political discontinuity of strategies and policies for mitigating conflicts. The study was funded by Gerda Henkel Stiftung Foundation and Social Science Research Council (SSRC); and was supervised by Dr. Charlotte Karungi Mafumbo and Prof. Philip Kasaija.



Conferment of the
Degree of Doctor of Philosophy

MUGABI Nicholas
***Mobile Agricultural Extension Services and Household Livelihoods
in South-Central Uganda***

MUGABI Nicholas examined the utilisation of mobile agricultural extension services for household agricultural livelihood improvement in south-central Uganda. Results revealed that using personal, social and environmental resources, Village Enterprise Agents as lay extension workers leveraged the Kulima mobile platform to disseminate agronomic, climate change mitigation, market and financial services information. Expected economic benefits, social influence, perceived ease of use and usefulness of mobile platforms were key drivers for utilisation. However, mobile extension services were hampered by the proliferation of uncoordinated platforms and technology malfunctioning. Thus, mobile extension initiatives should be strengthened, translate agricultural information into indigenous languages and ensure quality assurance of extension content packages. This study was funded by the Sida-Makerere Bilateral Research Corporation under Project SS313-2014, and supervised by Prof. Andrew Ellias State, Assoc. Prof. Julius Omona and Prof. Staffan Hjer.



Conferment of the
Degree of Doctor of Philosophy

MUKISA Ayub
***Gender and Adaptive Capacity to Climate Change Among
Smallholder Farmers in Nabilatuk District, Karamoja Sub Region***

MUKISA Ayub examined the relationship between gender and adaptive capacity to drought among smallholder farmers in Nabilatuk district, Karamoja sub-region, eastern Uganda. He established that drought remains a big challenge for the adaptive capacity of smallholder farmers in Nabilatuk district. He found that drought disrupted women and men's access to productive resources such as water, range lands and livestock amidst poor infrastructure, technology and institutional support thus lowering their adaptive capacities. The women's work burden increased, as men migrated in search of water and pasture for their animals while others shifted from pastoral activities to crop farming. He recommends a policy on resilience building among smallholder farmers to increase the adaptive capacity to drought. The study contributes knowledge to gender studies and theory regarding how men and women respond to drought. This study was self-sponsored and supervised by Assoc Prof. Florence Muhanguzi Kyoheirwe and Dr. Brenda Boonabaana.



Conferment of the
Degree of Doctor of Philosophy

NAKALAWA Lyda (Ms.)

The dilemma of youth empowerment in Uganda: Interrogating the mindset question

NAKALAWA Lyda describes a social cultural approach to mindset, as coming from one's mental dialogue with different voices in our social-cultural setting. She analyzed the life stories of seven beneficiaries of various youth empowerment programs in Uganda. Findings show that mindsets are shaped by multiple voices within our social cultural setting. Findings also show that youth hold both negative mindsets characterized by helplessness and positive mindsets characterized by resilience and creativity. Finally, she also discusses how youth can be effectively engaged to recognize and overcome the negative voices that are detrimental to personal and national development. The study was funded by Andrew Mellon Foundation and supervised by Assoc Prof. Julius Kikooma and Dr. Mayanja Kajumba.



Conferment of the
Degree of Doctor of Philosophy

NAMUDDU May

Writing competence in English: A genre-based analysis of university students' written texts, 2000-2015

NAMUDDU May examined the writing competence in English of Makerere University students in the Natural Sciences to establish how it has evolved for the period 2000-2015. Informed by the Systemic Functional Linguistics genre theory, the analysis focused on the structural and linguistic features in the chemistry students' explanation genres, examining what their main strengths and weaknesses were. The findings every five years were compared across the times to establish the students' writing trends expressed over time. Regarding the text structure, the study concluded that the students' writing competence fluctuated, with indicators of generally weak performance. In their use of the linguistic features, while the majority of students made use of the selected linguistic features, they expressed a decline as the years progressed. Nevertheless, students demonstrated better performance of the linguistic features. The study was funded by Gerda Henkel Stiftung and supervised by Dr. Levis Mugumya and Dr. Fridah Katushemererwe.



Conferment of the
Degree of Doctor of Philosophy

NAMUKASA Jacqueline (Ms)
Territorial Conflicts in East Africa: Uganda-Kenya Contestation Over Migingo Island 1926-2009

NAMUKASA Jacqueline employed the Constructivism theory of international relations to examine the Uganda-Kenya contestation over Migingo Island in the period, 1926-2009. Drawing on archival sources, colonial maps, official reports and oral interviews, the study established that the contestation over Migingo is primarily over fish resources interwoven with the desire by either state to guard its sovereign rights over the island. Contrary to assertions that Migingo is just a rock, this study contends that wealth abounds around Migingo in form of fish, a mobile resource that is desired by either country. Whoever owns the water around the island has access and ownership over the fish. Moreover, the enduring notions of territorial-sovereignty “the most crucial national interest of every nation” influence the tensions between the two states. To address this conundrum, Uganda and Kenya should consider negotiation other than reliance on the inconsistent colonial maps. The study was funded by Gerda-Henkel Stiftung Foundation and supervised by Dr. Pamela Khanakwa and Prof. Murindwa Rutanga.



Conferment of the
Degree of Doctor of Philosophy

NANFUKA Margaret
Semantic Challenges of Cross-Cultural Translation: An Appraisal of the Notion of Conflict in the Luganda and German Translation of 'Animal Farm'

NANFUKA Margaret investigated the challenges of cross-cultural translations, using the theme of conflict in *Animal Farm* by George Orwell (1945) as a case study. Using a qualitative approach, she identified the notion of conflict in the source text, assessed the translator’s presentation of conflict in the target texts, and investigated the challenges and strategies used in translation. Her findings indicated that translators were generally able to transfer the source text message of conflict into the target languages of German and Luganda, irrespective of whether the target language was close or distant to the source text. Apart from the semantic challenges, her use of the Appraisal Framework enabled the discovery of grammatical and stylistic problems that hinder appropriate cross-cultural translations. This study was funded by Makerere University, DAAD and the EU. It was supervised by Dr. Merit Kabugo, Dr. Samuel Ssekiziyivu, and Prof. Edith Natukunda-Togboa.



Conferment of the
Degree of Doctor of Philosophy

NANSIKOMBI Proscovia (Ms)
Christianity and Politics; Monitoring of National Elections in Uganda with Special Reference to The Uganda Joint Christian Council (UJCC) 1994 - 2016

NANSIKOMBI Proscovia historicized and examined the roles and mandate of the Uganda Joint Christian Council (UJCC) in the monitoring of national elections in Uganda between 1994 and 2016. With the application of the historical research methods which included analyzing the documentary, oral narratives and archival sources, the study covered new ground in documenting the historical role of UJCC as an ecumenical body in the monitoring of national elections in Uganda. The study unearthed the challenges and achievements of UJCC during the course of executing its mandate of monitoring national elections in Uganda. The study established that every after monitoring of the national elections since 1994, UJCC has been presenting a number of recommendations to the various national elections stake holders. The study revealed that some of the UJCC recommendations have been implemented by the Electoral Commission and the Government of Uganda, as the official stake holders. The study was funded by Daughters of Mary Sisters of Bwanda, Masaka and supervised by Dr. Charlotte Karungi Mafumbo and Dr. Veneranda Mbabazi.



Conferment of the
Degree of Doctor of Philosophy

OBONYO Francis
Decentralization, Community Empowerment and Livelihoods in Karamoja, Uganda

OBONYO Francis examined the impact of decentralization policy reforms on political empowerment, livelihoods, coordination and the nexus between traditional authority and local government systems in Karamoja. The findings of his study indicate that despite the fact that ordinary people were strongly attached to their traditional authority structures, decentralization fell short of blending the two systems. This has caused parallelism and conflicts. Besides, decentralization policy reforms did not improve coordination of multiple development actors and programs and neither were ordinary people empowered politically since local elites captured the system. Contrary to the expectation of decentralization policy reforms, peoples' livelihoods were marginally improved rather than transformed. He recommends increasing budgetary allocation to local government and deepening of participation. The study was funded by SIDA and supervised by Prof. William Muhumuza and Prof. Sabiti Makara.



Conferment of the
Degree of Doctor of Philosophy

OGWANG Tom

Development Interventions and Post conflict Reconstruction in Northern Uganda

OGWANG Tom examined the effects of development interventions and the post conflict reconstruction of Northern Uganda. It was undertaken in the districts of Gulu and Pader. This region has received a lot of development interventions and investments from the government of Uganda and non-state actors to support its recovery from the war and the ravages of the armed conflict. Despite the comprehensive recovery and development plans for the region, it is characterized by persistent large inequalities in incomes, education, health and participation across gender, geography and life style. Their efforts seem not to have taken cognizance of the heterogeneity of the region, by pursuing a one-size-fits-all approach to interventions. That is why their investments seem not to have created the desired impact in the region. More specifically, peace building and reconciliation efforts seem to have been largely underfunded as compared to the other strategic objectives. The study was funded by SIDA, The United Nations Mandated University for Peace (UPEACE), Belgian Technical Cooperation (BTC) and The Council for the Development of Social Science Research in Africa (CODESRIA). The study was supervised by Prof. Murindwa Rutanga and Prof. Elijah Dickens Mushemeza.



Conferment of the
Degree of Doctor of Philosophy

OMULO Owenda Charles

Socio-economic Impact of Floriculture Industry on Livelihoods of Communities Hosting Flower Farms in Central Uganda

OMULO Owenda Charles examined the socioeconomic impact of floriculture industry on the livelihood of flower farm workers in Wakiso District, Central Uganda. To achieve this objective, he employed an exploratory sequential mixed method design and methodology. The study found that flower farms had provided jobs to the rural people, increased entrepreneurial activities, and through corporate social responsibilities; constructed and maintained rural roads, opened up their privately owned clinics to the public and thus, improving health services in the neighbouring communities. Despite these benefits, the study also registered some negative impacts emanating from flower farms. These included environmental pollution as a result of pesticide drifting into the neighbouring communities, and poor working conditions that had exposed flower farm workers to hazardous agrochemicals. Considering these challenges, the study concludes that, left as it was, flower growing was unsustainable. The study was self-sponsored and supervised by Dr. Robert Senath Esuruku and Dr. Eria Serwajja.



Conferment of the
Degree of Doctor of Philosophy

SSEMULENDE Robert

Situating The Sangoan Techno-Complex into The Stone Age the Context at Sango Bay, Southern Uganda

SSEMULENDE Robert investigated the position of the Sangoan lithic industry in the Stone Age nomenclature at Sango Bay Southern Uganda the type-site. Though the term Sangoan was adopted outside Uganda controversies remained concerning its stratigraphic composition and dating. Stratigraphically there was a need to ascertain if the Sangoan techno-complex could be categorised as an Acheulean, Middle Stone Age or independent Stone Age industry. The Sangoan environment was it a grassland or forest variant? Typology and technology were also investigated. Using archaeological surveys, excavation, phytoliths and archival data, the results revealed that typologically the Sangoan had a combination of both heavy and light-duty tools made using predominantly the Levallois technology in a woodland environment. Chronologically the absolute and relative dates proved that the Sangoan was neither Acheulean nor Middle Stone Age and not even an independent industry but a post-Acheulean Techno complex with traces of the Later Stone Age. The study was funded by Gerda Hankel Stiftung Foundation Germany and African Doctor Academy at Stellenbosch; and was supervised by Assoc Prof Elizabeth Kyazike and Assoc Prof. Julius Bunny Lejju.



Conferment of the
Degree of Doctor of Philosophy

TIBASIIMA Isaac

Song and Nation: A Study of the Secondary School Song Competition Original Song Composition in Uganda

TIBASIIMA Isaac studied song composition as a performance of the Ugandan nation. Drawing on both postcolonial and performance theories, he argued that students, through song performance, occupy trans-spatial and imaginative realms as they are able to interact with their community in contesting, and remaking the idea of the nation. His study employed a qualitative approach. His findings revealed that students, in their performance of the original song composition, occupy ambivalent spaces that allow them a chance to transit between student and adult spaces. Additionally, they are able to both consciously and unconsciously interrogate issues of, nationalism, national and cultural identity. The study suggests novel ways of studying competition song performance as a collaborative process aiming at discussing national issues and finding solutions to national problems. The study was funded by the Mak-NUFU Folklore Project and supervised by Prof. Dominica Dipio and Dr. Susan Kiguli.



Conferment of the
Degree of Doctor of Philosophy

TUMWINE Agatha (Ms.)

Losses and Gains: A Stylistic analysis of the Translation Process of Folktales from Runyankore-Rukiga into French

TUMWINE Agatha analyzed the translation process of folktales from Runyankore-Rukiga into French with the aim to document the losses and gains involved in the translation process between two culturally distant languages. The study reveals that losses in translation may be linguistic, cultural, literary in nature. The study also indicates that translators need to apply a combination of appropriate translation methods and techniques in order to produce texts that are readable and acceptable in the target language. The study further established that gains in the translation are realized mostly through the creativity of the translator who enriches the target text by bringing in aspects that were not present in the source text. The study concludes that translation is creative re-writing and a translator is a co-creator in a different language. The study was funded by Andrew W Mellon Foundation and Makerere University and supervised by Assoc. Prof. Edith Natukunda Togboa and Dr. Enoch Sebuyungu

College of Veterinary Medicine, Animal Resources and Bio-Security (CoVAB)

The Principal College of Veterinary Medicine, Animal Resources and Biosecurity to present the following for the conferment of the degree of Doctor of Philosophy



Conferment of the
Degree of Doctor of Philosophy

NABULIME Margaret (Ms)
Improved Indigenous Feed Resources and Feeding Practices for African Catfish *Clarias Gariepinus* Hatcheries

NABULIME Margaret investigated the suitability of a wide range of local feed resources with the objective of developing an affordable novel starter feed for the young African catfish (*Clarias gariepinus*) in hatcheries. The motivation for this research was limited access and affordability of starter feed in Uganda, due to lack of home-grown quality starter feed and expensive imported feed. Prototypes of starter feeds denoted P58 and P60 were developed and later tested with the fish. Potential local fishing baits were incorporated in prototypes as feed attractants and their action to improve feed uptake and growth tested. There was improvement in feed quality factors of attraction, palatability as well as digestibility. The feed is 25 percent cheaper than the imported, affordable for the Ugandan farmers and above all, it is more sustainable. The findings contribute to knowledge of improving our local resources for starter fish feeds to save feed input costs. The study was funded by NARO and Carnegie Corporation of New York; and was supervised by Prof. John David Kabasa, Prof. Justus Rutaisire and Prof. Samuel Okello.



Conferment of the
Degree of Doctor of Philosophy

NASAKA Joelia (Ms)
Japanese Quail (*Coturnix Coturnix Japonica*) Feeding Practices in Uganda and Their Implications For Egg Quality

NASAKA Joelia worked on a type of game birds known as Japanese quail (Obugubi in Luganda), domesticated for both meat and egg production. Although quail eggs are considered healthier than chicken eggs, their nutritional composition and their overall interior quality depreciates more rapidly during storage compared to chicken eggs. This is attributed to the low shell percentage (7%) of quail eggs compared to (12%) for chicken eggs. Hence, ensuring adequate eggshell integrity is of greater importance in quail production. Minerals required for formation of the eggshell are provided by nutrition and feeding. The study investigated quail feeding practices in Uganda and their implications for egg quality. Findings showed that diets used in quail feeding in Uganda do not conform to the recommended specifications, and that the feeding of plant leaves in their fresh form to quails is a common practice, both practices worsen quail eggshell quality problems. The study was funded by Carnegie Corporation of New York, DAAD and DRGT; and supervised by Assoc. Prof. John Bosco Nizeyi, Assoc. Prof. Samuel Okello and Dr. Constantine Bakuya Katongole



Conferment of the
Degree of Doctor of Philosophy

SSAJJAKAMBWE Paul

Application of Synthetic Genomics Tools to Generate Mycoplasma Mycoides Mutants to Decipher Host Pathogen Interactions

SSAJJAKAMBWE Paul worked on a group of bacteria, known as Mycoplasmas that cause disease in ruminants, poultry and humans. This work focused on those species affecting ruminants. Specifically, the study sought to better understand the interactions between these disease-causing agents and the susceptible host. During this study, a cluster of 68 genes were deleted from Mycoplasma mycoides capri GM12, which are known to contribute to disease outcome. The findings clearly indicated that the genes deleted using the Tandem Repeat Endonuclease cleavage method were true virulence factors for Mycoplasmas. In addition, an alternative animal infection model for Mycoplasma based studies was developed and optimized. This was the first time the true virulence factors for Mycoplasma bacteria were confirmed in an animal infection model. As a result, such studies will be used to improve the quality of the existing Mycoplasma vaccines which present with undesirable effects. The study was funded by The National Science Fund, The International Livestock Research Institute; and supervised by Assoc. Prof. Robert Tweyongyere, Assoc. Prof. Enock Matovu, Prof Dr. Joerg Jores and Dr. Elise Schieck.



Conferment of the
Degree of Doctor of Philosophy

SSEKATAWA Kenneth

Evaluation of Nanoparticles and Phages as Candidate Therapeutic Agents for Carbapenem Resistant Klebsiella Pneumoniae and Escherichia Coli

SSEKATAWA Kenneth investigated factors influence the capacity of E. coli and K. pneumoniae to infect and colonize different body systems. The coexistence of virulence and beta-lactamase encoding genes complicates treatment outcomes. To this effect, this study investigated the carbapenem resistance profiles of pathogenic E. coli and K. pneumoniae in Uganda. Furthermore, nanomaterials and bacteriophages as alternative approaches to treat bacterial infections were evaluated. Among the 249 E. coli pathotypes detected, phenotypic resistance was found in 31.7% isolates. For K. pneumoniae capsular types, 34.9% (37/106) exhibited phenotypic resistance. Two novel phages (UGKSEcP1 and UGKSEcP2) without any undesirable genes belonging to the Myoviridae phage family, Tequatrovirus genus, exhibited excellent lytic activity against all the detected carbapenem-resistant pathotypes. Furthermore, a cocktail of phages and nanomaterials significantly reduced the planktonic and biofilm bacterial population density more than the individual components. Further, the studied revealed that the cocktail was more effective in preventing biofilm formation than treating it. The study was funded by Africa Centre of Excellence in Materials Product Development and Nanotechnology (MAPRONANO ACE) and sponsored by Prof Denis K. Byarugaba, Dr. Eddie M. Wampande and Prof Francis Ejobi.



Conferment of the
Degree of Doctor of Philosophy

OBA Peter

***Epidemiology of Selected Respiratory Diseases and their Impacts
on Smallholder Pig Production Systems in Lira District, Uganda***

OBA Peter investigated occurrence, herd risk factors, molecular identity and economic impacts of important respiratory pathogens and gastro-intestinal (GIT) parasites on smallholder pig production systems in Lira district, Uganda. Four economically important respiratory pathogens in pigs: porcine reproductive and respiratory syndrome virus (PPRSv), porcine circovirus type 2 (PCV2), Mycoplasma hyopneumoniae (M. hyo) and Actinobacillus pleuropneumoniae (App) and gastro-intestinal (GIT) parasites were studied. Findings revealed significant associations between housing type, hygiene, biosecurity practices, concurrent GIT parasite infections and studied respiratory pathogens. The studied pathogens were associated with occurrence of pneumonia in pigs and contributed significant economic losses to farmers from reduced weight gains. Two circulating genotypes of PRRSv (PPRSv-1 and PRRSv-2) were identified, which could have implications for pig health in Uganda. Improving floors, hygiene, wastes management and GIT parasite control, as well as limit contacts with outside pigs are required to reduce economic losses due to respiratory diseases. The study was funded by DAAD and Sustainable Animal Productivity for Livelihoods, Nutrition and Gender Inclusion (SAPLING); and was supervised by Prof Frank N. Mwiine, Dr Michel M. Dione, Prof Joseph Erume and Dr. Emily Ouma.

College of Education and External Studies (CEES)

The Principal College of Education and External Studies to present the following for the conferment of the degree of Doctor of Philosophy



Conferment of the
Degree of Doctor of Philosophy

GITTA Eric
Perceived Needs Satisfaction and Counterproductive Workplace Behavior of Administrative Staff at Makerere University

GITTA Eric followed a cross-sectional survey design to collect data from a stratified sample of 191 administrative staff out of a target population of 376 staff at Makerere University. The data were analyzed using descriptive statistics, Pearson Product Moment Correlation Coefficient, and Simple Linear Regression Analysis. The findings were that, on the whole, need satisfaction is perceived to be fair. Satisfaction of existence needs ($r = 0.059$, $p < 0.000$), and Satisfaction of growth needs ($r = 0.34$, $p < 0.006$) were found to be related to the administrators workplace behavior. However, perceived satisfaction of relatedness needs was not significantly related ($r = 0.13$, $p < 0.062$). Therefore, it was concluded that improvement of workplace behavior among administrators at the University would benefit from improved satisfaction of the administrators existence and growth needs. The study was self-sponsored and was supervised by Assoc. Prof. Jude Ssempebwa.



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KATONGOLE Gonzaga
Accountability Practices of Academic Staff and Service Delivery at Makerere University

KATONGOLE Gonzaga examined students' satisfaction with the quality of teaching, examinations, and internship programs at Makerere University. The study delved into the effectiveness of academic staffs' accountability practices in the delivery of these programs. Data was collected from students and academic staff between 2018 and 2020. This was done following a cross-sectional survey design based on questionnaire and key informant interviews. Overall, the findings show that the students were satisfied with the quality of services they received. However, their lecturers' accountability practices in the areas of teaching and internship were not very effective due to surging student numbers and inadequate facilitation. The staffs' accountability mechanisms in relation to examinations were found to be effective. Recommendations towards admission of numbers of students that are commensurate with the available supporting resources are made. This study was self-sponsored and was supervised by Professor Anthony Mugagga Muwagga.



Conferment of the
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KIBUUKA Enock

***The Uganda Students' Higher Education Financing Policy
Perspective on Equitable Access to Higher Education in Uganda***

KIBUUKA Enock study was anchored in two philosophical perspectives namely transformative justice and discourse Analysis. The study found that the implementation of the Uganda Students Loan Scheme is marred with political elitism, corruption, limited public awareness about the loan scheme, and dropout of some of the beneficiaries. Objective three of the policy aims to ensure regional balance in the provision of higher education. Using Discourse analysis, the study revealed that regional balance as used in the policy is a cynical policy rhetoric and a discourse that is used to perpetuate regional hegemony of those who have traditionally dominated HE through unequal power relations, rather than a pure act of social justice. Thus regional balance is used as an assemblage of governmentality showing that policies are more than just institutional mechanisms for producing agreement but are also stages on which theatrical and symbolic modes of politics are performed. The study develops a new model of funding. The study was partly self-sponsored and funded by Prof. John Waterbury; and was supervised by Prof. Joseph Kimoga and Assoc Prof. Ronald Bisaso.



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Degree of Doctor of Philosophy

LUBEGA Francis Xavier

***School-based reward practices and quality education in secondary
schools in Masaka District***

LUBEGA Francis Xavier examined school-based reward practices and their motivational implications on quality education in secondary schools in Masaka District. The study discovered various reward practices whose motivational implications were significant. These practices were also related to selected elements of quality education. He concluded that, although the variety of reward practices and the complexity of teacher motivation confounds attempts to identify the best strategies of using rewards to motivate teachers, teacher-driven school-based reward practices combined with salary enhancement are likely to promote quality teaching and learning. He recommended that instead of focusing on reward types and magnitudes, whose motivational merit is hard to sustain, managers should focus on teacher-driven reward decisions which teachers are likely to perceive as trustworthy. So, reward managers should strive to improve salaries and adopt practices which attach importance to teachers' involvement in reward-related decision making. He also proposed a model of school-based teacher reward practice. The study was funded by Masaka Diocese and supervised by Prof. Jessica Norah Aguti and Dr. Gyaviira Musoke Genza.



Conferment of the
Degree of Doctor of Philosophy

LUKWAGO Rashid

Knowledge, Attitude and Practices of Luganda Language Educators in Using Emerging Technologies in the School of Education, Makerere University

Lukwago Rashid explored the knowledge, attitude, and practices of Luganda language educators in using emerging technologies at the School of Education, Makerere University. The study employed a case study design, and data were analyzed using the thematic content data analysis technique. On the whole, the findings revealed that Luganda language educators had positive attitudes and practices towards using emerging technologies, in managing to teach and learning via MUELE, zoom, and the use of language translation machines. The study concluded that Luganda teacher Educators were positive towards using emerging technologies in Luganda Teacher Education, even though some have failed to fully embrace the benefits of emerging technologies in teaching and learning. The study thus recommended that the University Governing Council should enforce the ICT policy to ensure regular training of academic staff in using emerging technologies to match the teaching and learning practices that meet the interests of 21st-century students. The study was self-sponsored and was supervised by Assoc. Prof. Betty Ezatti and Prof. Anthony Muwagga Mugagga.



Conferment of the
Degree of Doctor of Philosophy

LUTAAYA Bernadette

Reframing the perceived changing roles of academic deans in Makerere University

LUTAAYA Bernadette explored how academic deans perceive their changing roles and how they reframe their perceived changing roles in Makerere University. Academic deans are working under a changing and challenging environment which is financially constrained and politically influenced. Using Edmund Husserl's transcendental phenomenology, complex and leadership frames emerged as themes. This study therefore concluded that those academic deans perceived their changing roles in Makerere University as complex since they were hectic and multiple. Those academic deans also reframed their perceived changing roles using the human resource, structural, political and symbolic leadership frames. Whereas those academic deans reframed mostly using the human resource and structural frames, the political frame was exploited in the science-based disciplines. Thus, academic deans need to be more intentional in using the political frame through networking and partnerships to solve their financial constraints. This study was self-sponsored and supervised by Assoc. Prof Ronald Bisaso and Dr. Florence Nakamanya.



Conferment of the
Degree of Doctor of Philosophy

LUYIMA Jimmy

Mobile Phone Apps Supported Instructional Resources and Learning of Chemistry: A Case of Resource-Constrained Private Secondary Schools in Wakiso District-Uganda

LUYIMA Jimmy conducted a quasi-experimental mixed methods study and investigated how WhatsApp with its enabler mobile phone Apps could be used as an intervention to address the challenge of access to chemistry instructional resources for practical tasks by students. Findings revealed that the utilization of the App-supported e-resources enabled effective learning of chemistry as evidenced by improved student-teacher interactions, student science process skills, and attitudes towards chemistry. The study recommends that teachers and parents should encourage their students to use WhatsApp and mobile phone technology as pedagogical tools, to supplement face-to-face classroom teaching in resource-constrained circumstances. The Ministry of Education should also expedite the formulation of a policy on using various ICTs. The study was self-sponsored and supervised by Dr. Michael Walimbwa and Dr. John Sentongo.



Conferment of the
Degree of Doctor of Philosophy

OPUL Joseph

Contribution of Education to building Resilience of Refugee Learners: A Case Study of Primary Schools in Nakivale Settlement, Isingiro District- Western Uganda.

OPUL Joseph studied the contribution of Education to building the Resilience of Refugee Learners. In particular, the study assessed the contribution of curriculum, examine the role of teachers and examine role of school leadership in building the resilience of refugee learners. The findings show that Curriculum was inappropriate, Teachers inadequately contributed and school leadership was found ineffective in building resilience of refugee learners. Despite the contribution of curriculum, role of teachers and role of school leadership in building the resilience of refugee learners, there is still limited resilience. It was recommended that MoES design a flexible Significant blended curriculum, a refugee teacher-management framework and Integrated refugee school leadership framework. The study was funded by Quality Education Consultancy Ltd and supervised by Dr. Nicholas Itaaga and Dr. Wycliffe Wafula.



Conferment of the
Degree of Doctor of Philosophy

OWINY Michael Peter

Implication of Democratization of Education on Quality of Primary Education in Lango Sub-Region, Uganda.

OWINY Micheal Peter investigated the implication of the Democratization of Education on the Quality of Primary Education in Lango Sub-region of Uganda. The findings showed that efforts to the democratization of education supported learners' participation, assessment, and completion. Total Quality Management Theory by Deming which was used in the study presents knowledge gaps, equating learners to raw materials in the factory. The researcher in this study urged that learners are independent and therefore, cannot be measured with similar standards as used in the factories for raw materials. But each learner should be considered as an individual with different learning needs. To improve the quality of education, different factors must be seen playing their unique roles. The study was self-sponsored and supervised by Dr. Betty Ezati and Dr. Badru Musisi.



Conferment of the
Degree of Doctor of Philosophy

SANDE Muwanguzi Erunao

Pedagogical Effectiveness of Teachers Engaged in Academic-Related Income Generating Practices in Government Aided Secondary Schools in Wakiso District

SANDE Muwanguzi Erunao examined the pedagogical effectiveness of teachers engaged in academic-related income generating practices (AIGPs) in government aided secondary schools in wakiso district. The study employed a qualitative research approach and a multiple case study design. Participants were teachers who engage in AIGPs, their head teachers, directors of studies, heads of department and students; who were purposively selected. Data were collected using interview guides, lesson observation checklist, focus group discussion guide and documentary review checklists. Data analysis employed thematic analysis. Findings revealed a breadth of both authentic and improbable compliance strategies which involved teachers use to comply with pedagogical effectiveness. It was concluded that teachers' involvement in AIGPs give them motivation to comply with pedagogical effectiveness despite the reported incompliance perhaps arising from administrators' indifferent actions towards involved teachers' practices. A model of teachers' enterprising pedagogical effectiveness was proposed to guide objective involvement of teachers in AIGPs. The study was self-sponsored and supervised by Dr. Badru Musisi and Dr. Nicholas Itaaga.



Conferment of the
Degree of Doctor of Philosophy

RWAKIJUMA Komba Leticia
Predictors of Research Productivity of Academic Staff in Kyambogo University, Uganda

RWAKIJUMA Komba Leticia investigated research productivity among academic staff at Kyambogo University. Using multiple linear regression models, the study revealed that individual factors of motivation and research skills were significant positive predictors of research productivity. Therefore, to improve research productivity of academic staff at Kyambogo University, university managers were recommended to enhance the motivation of academic staff by making research enjoyable, curiosity-raising, and relevant in terms of improving their status and income. They should also enhance the research skills of academic staff in relation to research methodology skills, grant-getting skills, computer skills for research and writing skills. The study was funded by SIDA and was supervised by Prof Fred E. K. Bakkabulindi and Dr. David Onen.



Conferment of the
Degree of Doctor of Philosophy

UJEYO Stella Margaret
Approaches for Implementation of Education for Sustainable Development in Public Universities in Uganda: A Case of Busitema University.

UJEYO Stella Margaret explored the approaches for implementation of education for sustainable development by academic staff in Busitema University. The study was prompted by the role of universities as the main drivers of change in ameliorating the sustainability challenges plaguing the world. The focus on Busitema University arose from its declaration to educate for sustainable development in its mission. The study found adoption of various discipline-based programmatic approaches, dominance of teacher-centered pedagogical approaches, and basic use of ICTs. The much-desired whole system approach and transformative pedagogical approaches had not been embraced for implementation. A holistic, comprehensive and multidimensional approach is required in order to develop, harmonise and strengthen the implementation of education for sustainable development in the university. This study was funded by the Swedish International Development Agency (SIDA) and supervised by Dr. Rovincer Najjuma and Assoc Prof. Ronald Bisaso.

College of Agriculture and Environmental Sciences (CAES)

The Principal College of Agriculture and Environmental Sciences to present the following for the conferment of the degree of Doctor of Philosophy



Conferment of the
Degree of Doctor of Philosophy

AKONGO Graceline Obong
Effects of Climate Variability on Rainfed Rice Production: A Case study of Northern Farming System Agroecological Zone of Uganda

AKONGO Graceline Obong's study was built around the fact that rainfed rice (*Oryza sativa*) cultivation is vulnerable to climate variability. Although this is the case, the researcher believed information gap existed linking vulnerability of rainfed rice production to climate variability. The motivation was thus to examine the relationships between climate variability, coping strategies and rice production. Using a four-year climate and production panel data, the following were revealed: Each rice production system response to prevailing climatic conditions differently. Efficiency model exhibited a downward trend at an annual rate of 14% and yields are remarkably low confirming potential threat of climate variability. Rainfall trend and variability analysis showed coefficient of variations exceeding 30% and anomalies revealed eight incidences of severe droughts. Selected coping strategies have positive correlations with high yield. The researcher concludes that; rice production is affected by increased variability in rainfall and temperature. Selected coping strategies substantially improve rice yield. The study was supervised by Prof. William Gombya-Ssembajjwe and Prof. Buyinza Mukadasi



Conferment of the
Degree of Doctor of Philosophy

ARINAITWE Abel Byarugaba
Potato viruses in Uganda and prevalence of extant R genes that suppress effects of virus diseases

ARINAITWE Abel Byarugaba investigated the viruses that affect potatoes in Uganda and assessed the prevalence of resistance genes that suppress effects of virus diseases. The study identified six viruses; PVS strain O, PVX strain X3, PLRV, PVM, PVA and PVY strain (O, N and NTN) which occurred as single and in mixed infections. Co-infection involving PVY and PLRV were common and caused severe disease symptoms in many potato varieties. His study identified five genes (Ryadg, Rysto; Nbtbr, Nsadg and Gmgrl) that condition resistance to viruses; PVY, PVX, PVS and PVM. The resistant gene (Ryadg) suppressed the effects of PVY virus by 60-79% and for virus co-infection of PVY+ PLRV by 22.1- 48.8%. Abel recommends that gene pyramiding should be prioritized to suppress the effects of virus diseases. The study was funded by National Agricultural Research Organization (NARO) and was supervised by Prof Settumba Mukasa and Prof. Patrick Rubaihayo.



Conferment of the
Degree of Doctor of Philosophy

KWIKIRIZA Norman

Transaction costs and governance of value chains of organic pineapples from Uganda

KWIKIRIZA Norman studied the transaction costs and governance of value chains of organic pineapples from Uganda. The current supply of organic pineapples in the global market does not match demand in these markets. Kwikiriza's study identified the transaction costs that limit the amount of organic pineapples exported, the governance mechanisms that may minimize the transaction costs faced by farmers and exporters. The study identified the modular, captive and relational governance mechanisms in the organic pineapple trade and found that governance of transactions under the modular governance minimizes transaction costs. Trust building through horizontal and vertical linkages between actors in the organic pineapple value chains enable transactions to take place in the face of transaction costs and hence increasing the proportion of organic pineapples exported. The study was funded by the Productivity for Growth of Organic Value chains and was supervised by Prof. Johnny Mugisha, Prof. Konstantinos Karantininis and Dr. Paul Rye Kledal



Conferment of the
Degree of Doctor of Philosophy

MODI Jackson Venusto Lado

Role of Silicon in mediating resistance towards rice blast in selected Rice varieties

MODI Jackson Venusto Lado studied the role of silicon in mediating resistance towards rice blast in selected rice varieties. In particular, Modi identified resistant germplasm to rice blast under Silicon Amendment in Uganda. The study also examined inheritance of silicon uptake ability in rice blast resistant varieties. Finally, the study established the relationship between silicon uptake ability and resistance to rice blast resistance. The study was funded by Intra-ACP and supervised by Prof. Patrick Rubaihayo and Dr. Peter Wasswa.



Conferment of the
Degree of Doctor of Philosophy

NAMUBIRU Lenah Leticia (Ms.)
Food Control in Uganda: A Case of the Rice Value Chain

Ms. NAMUBIRU Laetitia Lenah investigated the effectiveness of the food control system on the rice value chain of Uganda. The study revealed that the food law in Uganda is antediluvian and there is need to amend it to control food. Food handlers were knowledgeable about aflatoxin and pesticides but not heavy metals. Imported rice was more contaminated compared to locally grown rice. This study revealed that there is a potential carcinogenic risk from consumption of rice in both infants and adults at the current level of contamination. The study was funded by Islamic Development Bank and supervised by Assoc Prof. Yusuf Byenkya Byaruhanga and Dr. Denis Male.



Conferment of the
Degree of Doctor of Philosophy

NAMUGWANYA Margaret (Ms.)
Mechanisms of adaptation of low soil phosphorus tolerant common beans to water deficit

NAMUGWANYA Margaret evaluated the adaptive mechanisms of low soil phosphorus tolerant common bean genotypes to water deficit conditions. The study was carried out in Nakasongola and Mukono Districts. The results revealed the outstanding adaptive mechanisms associated with water deficit and low soil phosphorus tolerance in the studied genotypes included morphological responses such as specific leaf area and improved root development, and physiological responses as shortening of physiological activities. It was however clear that tolerance of the studied genotypes to both water deficit and low soil phosphorus was not essentially translated into corresponding grain yield. Therefore, the low soil phosphorous tolerant common bean genotypes involved in the study should be used as breeding parents to enhance water deficit. The study was funded by Swedish International Development Cooperation Agency (SIDA) and Makerere University; and supervised by Assoc Prof. J. S. Tenywa Prof. Emeritus Erasmus Otabong (RIP) and Dr. Taulya Godfrey.



Conferment of the
Degree of Doctor of Philosophy

OKETCHO Chombo

Variation in small holder farmers' perceptions and vulnerability to climate change in the Kyoga plains of Uganda

OKETCHO Chombo studied the variation in small holder farmers' perceptions and vulnerability to climate change in the Kyoga plains of Uganda. The study indicated that seasonal and decadal temperature had significant positive trends in the different sub zones of the Kyoga plains over the years and farmers belonging to groups as well as those of higher age groups perceived climate change while those who had more farming experience and access to information services did not. The level of vulnerability to climate change varied significantly among the farmers in the different subzones of the Kyoga plains; those in the Teso System (TS) were more vulnerable than those in the Banana Cotton Millet System (BCMS). Policies that strengthen networking among farmers for peer learning, encourages farmers' engagement in non-farm activities and enhances location specific intervention measures to improve perception, vulnerability and adaptation to climate change ought to be formulated for the different subzones of the Kyoga plains with a view of reducing farmers' vulnerability. The study was funded by SIDA and was supervised by Assoc Prof Shuaib Lwasa and Dr. Paul Mukwaya.



Conferment of the
Degree of Doctor of Philosophy

OWOYESIGIRE Brian Britex

Climate variability extremes, pastoralists adaptation strategies and future livestock productivity in the rangelands of Uganda

OWOYESIGIRE Brian Britex determined trends of climate extremes, pastoralists adaptation strategies and predicted future livestock productivity under heat stress in the rangelands of Uganda. It was observed that rainfall patterns were highly erratic, day-hot and night-warm temperatures were increasing and severe droughts and floods were the most perceived climate extremes affecting livestock productivity. Pastoralists' adaptation strategies included; fencing off pastures, control of stocking rates, diversifying livestock species and change in grazing time which majorly aimed at increasing availability of pastures with less regard to modifying the environment to reduce heat stress. Predicted heat stress values by 2040 will be beyond optimal requirements for dairy cows. Consequently, dairy cows will be exposed to extreme heat stress which will negatively impact on milk production especially for those in open grazing lands. Pastoralists therefore need to rethink the current drive of upgrading crossbreeds to Friesians to increase milk production without interventions to reduce heat stress. The study was funded by German Academic Exchange Service (DAAD) and supervised by Assoc. Prof. Denis Mpairwe, and Dr. Polly Ericksen.



Conferment of the
Degree of Doctor of Philosophy

RUGEMA Semaana Hilary
The Influence of Partnerships in Enhancing Functionality of One Stop Center Association (OSCA) Rice Value Chains in Uganda.

RUGEMA Semaana Hilary examined how One Stop Centre farmer Associations (OSCAs) in Bugiri and Luwero districts developed partnerships to enhance farmer benefits from rice value chains. The study revealed that inclusive engagement of smallholder farmers is important in identifying right partners to match their diverse needs, and bargain for their interests in partnerships to minimize exploitation. The study showed that facilitating information flow enhances trust and transparency which motivate smallholders to pool resources for rice value addition and access markets. Partnership critical value is in networks that facilitate negotiations with service providers and in accessing essential services and support mobilization. OSCAs are a business model platform for aggregation of smallholder farmer groups, who collectively engage partners to enhance participation in the upper end commodity value chains. However, the processes for partnership formation must guarantee smallholder farmers have capacity to influence functionality of partnerships in line with their interests and needs. The study was funded by Carnegie Corporation of New York through RUFORUM and SASAKAWA Africa; and supervised by Assoc Prof. Paul Kibwika and Dr. Haroon Sseguya.

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Conferment of the
Degree of Doctor of Philosophy

SSAMULA Alexander
Characterizing Reversion from Virus Infection in Sweet potato

SSAMULA Alexander studied the functioning of reversion in sweet potato. The study was based on the grounding that sweet potato has over time been used as a crop to alleviate food security and economic challenges among farmers. In spite of this, diseases especially viruses can completely wipe out the crop. However, plants have been identified to fight-off viral infections in a process called Reversion. It was observed that reversion is dependent on virus – type, and environmental factors. Also genes that lead to reversion were established, and it was found that they are heritable. By exploiting reversion system, disease free sweetpotato planting material can be cheaply produced ultimately mitigating food security and increasing incomes of resource poor farmers. The study was funded by Bill and Melinda Gates Foundation and was supervised by Dr. Peter Wasswa and Prof. Settumba Blasio Mukasa.



Conferment of the
Degree of Doctor of Philosophy

SONNIE Rose Kesselly

Modification of cassava and cowpeas flours and their use in flat bread (Chapatti) making

SONNIE Rose Kesselly examined the potential of modified cassava and cowpea flours in the production of flat bread like chapatti. This was motivated by the continuous dependence on and cost of wheat importation by sub-Saharan African countries, supply disruptions, and the rising wheat price. Modification of cassava and cowpea flours conferred functional properties that made a dough that was used to make a chapatti without wheat flour and with reduced wheat. The chapatti made without wheat flour had quality characteristics similar to and in some respects superior to that made from wheat flour. Additionally, chapati made from modified cassava and cowpeas had improved texture, taste, and flavor. The study demonstrated that chapati can be made without wheat. This will positively contribute to local food systems and reduce the need and cost associated with wheat nationally and in sub-Saharan Africa. The study was funded by the University of Liberia, RUFORUM and LEAP-Agri 400; and was supervised by Assoc. Prof. Yusuf B. Byaruhanga and Dr. Robert Mugabi.



Conferment of the
Degree of Doctor of Philosophy

SSONKO Umar Lule

Encapsulation of Banana Phenolics Using Modified Matooke (East African Highland Cooking Banana- AAAEA) STARCH

SSONKO Umar Lule explored the possibility of utilisation of banana waste through extraction of phenolic compounds (polyphenolics) and investigated the potential of banana starch as a wall material in the production of stable phenolic compound encapsulates. The amount and composition of polyphenolics and antioxidant activity of roasting bananas plantain (AAB) and the cooking/ juice type bananas (ABB) locally known as Gonja and Kivuvu respectively were determined. These bananas had high antioxidant activity irrespective of their maturity and plant part. Characterization of starch from 5 cultivars of the East African Highland Banana (*Musa accuminata* AAA- EA) was done prior to testing banana starch application for encapsulation wall material and its characteristics did not differ significantly indicating that these starches can be used interchangeably. Banana starch was modified and subjected to use as microencapsulation wall material for banana polyphenols resulting in successful microencapsulation of banana polyphenolics. The study was funded by the Presidential Initiative on Banana Industrial Development; and was supervised by Assoc Prof. Florence Muranga and Prof. Charles Muyanja.



Conferment of the
Degree of Doctor of Philosophy

TAMUBULA Irene (Ms.)

Enhancing Acceptance of Video Content through Farmers Participation in Production of Farmer-Learning Videos in Central Uganda

TAMUBULA Irene examined production of agricultural videos with emphasis on involving farmers in development of video content. This study established that effective consultations with farmers and agricultural experts throughout the video production process is crucial in ensuring that video content is based on both farmers' experiences and scientifically proven principles. However, the extent of participation of farmers in video production processes was impeded by the limited interactions between farmers and other actors, differing expectations, and time constraints. The quality of a farmer-learning video explained about 15% of farmers' acceptance of the information it communicates. Hence, this study highlighted the importance of actively engaging farmers in deciding video content in order to enhance the quality of the farmer-learning video from their perspective. This would contribute to farmers' acceptance of information communicated by the farmer-learning video. The study was funded by Kyambogo University and supervised by Dr. Richard F. Miiro and Dr. Sseguya Haroon.

Makerere University Business School (MUBS)

The Principal Makerere University Business School to present the following for the conferment of the degree of Doctor of Philosophy



Conferment of the
PhD in Energy Economics and Governance

AARAKIT M. Sylvia (Ms.)

Productive Use of Solar Electricity by Households in Uganda

AARAKIT M. Sylvia investigated productive use of solar electricity by households in Uganda using Diffusion of innovation, Capability and Sustainable livelihood theories. She examined factors that explain adoption of solar photovoltaic (PV) energy systems and its productive use by households. Using longitudinal research design, she established that flexible payment mechanism and neighborhood effect increase adoption of solar PV; while quality of solar PV, entrepreneurial skills, social network ties and financial inclusion increase productive use of solar electricity. She recommends that households should install high quality solar energy systems that can support productive use applications. Also, households should leverage on their entrepreneurial abilities, network ties and available financial services to harness productive use opportunities arising from solar PV electrification. Policy wise, she recommends that government should formulate a policy to regulate quality of solar PV systems imported and strengthen entrepreneurship skilling initiatives to support productive solar electricity use in households. The study was funded by NORAD-NORHED and supervised by Prof. Joseph M. Ntayi, Dr. Faisal Buyinza and Dr. Francis Wasswa.



Conferment of the
Degree of Doctor of Philosophy

MUNYAMI Moses Kinatta

Investment Decision Quality in Commercial real Estate market in Uganda

MUNYAMI Moses Kinatta investigated Investment Decision Quality in Commercial real Estate (CRE) market in Uganda using modern finance and behavioral finance theories. He particularly set out to examine mechanisms investors in CRE-market can use to enhance investment decision quality to achieve high returns and yields and subsequently create value growth. Using a cross-sectional research design, he established that de-biasing action plays a mediating role in the relationship between investor cognitive capabilities, investor intuitive attributes, information search precision and investment decision quality in CRE-market. He recommends that CRE-investors should continuously restructure their mind sets to respond to cognitive biases in order to make bias-free decisions. He further asserts that CRE-investors should implement mechanisms that promote profitability, value-creation, cost-efficient and sustainability. From the policy perspective, responsible ministries should create a wing and Real Estate e-market database that provide diversity of information that investors can base on to make CRE-decisions. The study was funded by Makerere University Business School and was supervised by Prof John C. Munene, Prof. Twaha Kaawaase and Dr. Isaac Nkote.



Conferment of the
Degree of Doctor of Philosophy

MANDRE Joshua
Adoption of Management Controls in Uganda's Manufacturing Sector

MANDRE Joshua examined the associations between institutional isomorphism, agency relations, self-organization and adoption of management controls. Underpinned by a critical realist philosophy, a cross-sectional sequential explanatory research design targeted Ugandan manufacturing firms. PLS-SEM tested the hypothesized relationships. The results indicate that agency relations, has the greatest contribution followed by institutional isomorphism, and self-organization, while confirming the existence of both, partial mediation and full mediation. The study concludes that establishing agency relations enables achievement of the firm's objectives. Secondly, responding to institutional isomorphic pressure enables firms to adopt management controls, and a firm that rearranges its patterns of operation, will adopt similar management controls with other firms. Also, firms tend to be innovative when responding to coercive pressures, such as responding to the requirements of standards bodies such as UNBS. Therefore, manufacturing firms need to continuously re-arrange their patterns of operation within the existing regulatory frameworks. The study was self-sponsored and was supervised by Dr. Levi Kabagambe and Assoc Prof. James Kagaari.



Conferment of the
Degree of Doctor of Philosophy

NALWEYISO Grace (Ms.)
Relational People Management in Micro and Small Enterprises

NALWEYISO Grace investigated Relational People Management in Micro and Small Enterprises (MSEs) of Uganda using the social exchange, relational cohesion, complex adaptive system and cultural historical activity theories. She specifically set out to examine mechanisms that MSEs can use to nurture positive workplace relationships which enhance their success and survival given the high failure rate in the country. Using a cross-sectional research design, she established that relational agency plays a mediating role in the relationship between generative leadership, positive emotions, generalized reciprocity and relational people management. She recommends that MSEs should embrace collective working, ignite people positive emotions and promote a culture of extending deeds towards others at work. From the policy perspective, she recommends that government through its line ministry and relevant bodies should emphasize nurturing of positive workplace relationships in MSEs given the unstructured nature and the close proximity within which both owner-managers and employees work. The study was funded Makerere University Business School and was supervised Assoc. Prof. Samuel Mafabi, Assoc Prof. James Kagari and Prof. John C. Munene.



Conferment of the
Degree of Doctor of Philosophy

OLYANGA Anthony Moni
Export Competitiveness of Firms in Developing Countries: A Study of East African Community

OLYANGA Anthony Moni investigated the export competitiveness of firms in East African Community using new trade and economic complexity theories. He particularly set out to examine the export logistics components, trade infrastructure and trade innovative indicators firms can use to enhance their competitiveness. Using the structural gravity on a panel data of 2007 to 2018, he established that shipment frequency, timely delivery, trade infrastructure, electricity usage, telephone usage and innovation in export country had significant effect on export competitiveness. He recommends the export firms should adopt and embrace the use of modern technologies such as telecommunications, internet and electronic interchange. From the policy perspective, he recommends that the partner states should implement reforms to improve the structural transformation by adopting value addition methodologies to increase the value of manufactured exports, diversify products to reduce the reliance on the export of primary products and increase intra-regional trade. The study was funded Makerere University Business School by and supervised by Dr. Isaac Shinyekwa, Prof. Muhammed Ngoma and Assoc Prof. Geoffrey Bakunda.



Conferment of the
PhD in Energy Economics and Governance

SENNANO Vincent Fred
Energy poverty among households in Uganda

SENNANO Vincent Fred investigated energy poverty among households in Uganda using capability theory. He set out to develop a Multidimensional Energy Poverty Index for Uganda (MEPI-U), and examine the effect of climatic shocks, household resilience and women empowerment on multidimensional energy poverty. Using a longitudinal research design, he finds that 66% of the households in Uganda are energy poor and they are deprived of seven indicators out of thirteen thus the computed MEPI-U is 0.331. In addition, he finds that climatic shocks increase energy poverty while there is great potential in energy poverty alleviation when women are empowered in relation to men, but it's even greater when both genders are empowered in the same household amidst climatic shocks. The study was funded by NORAD-NORHED Project and MUBS and was supervised by Prof. Ntayi M. Joseph, Dr. Buyinza Faizal and Dr. Wasswa Francis.

College of Business and Management Sciences (CoBAMS)

The Principal College of Business and Management Sciences to present the following for the conferment of the degree of Doctor of Philosophy



Conferment of the
Degree of Doctor of Philosophy in Economics

NABIDDO Winnie (Ms)
Educational Attainment, Household Education Expenditure and Learning Outcomes in Uganda

NABIDDO Winnie examined educational attainment, household education expenditure, and learning outcomes in Uganda. This is because education attainment and learning outcomes remain below the national development targets, despite the implementation of several education policies and programmes such as the Universal Primary and Universal Secondary Education policies. The findings confirm the positive association between household education expenditure and education attainment; poor households spend a larger share of their income on education; and the school governance factors were found to significantly impact learning outcomes at primary level. The study recommends that government needs amidst the dwindling and dismal government resources, adopt a different cost-sharing approach to public education spending as augmented by household education spending, and strengthen internal controls within schools. The study was funded by NPA and supervised by Prof. Bruno Lule Yawe and Dr. Francis Wasswa.



Conferment of the
Degree of Doctor of Philosophy in Economics

TURIAMUREBA Medard
Demand for Health Care and Private Health Insurance in Uganda

TURIAMUREBA Medard examined the determinants of demand for health care and health insurance in Uganda. Using data from the 2019/20 Uganda National Household Survey and the 2016 Uganda Demographic Health Survey, the study employed multinomial logit, trivariate probit, and binary logit models. The findings showed that the cost of health care negatively influenced the choice of government health facilities, while household welfare positively influenced the choice of private health facilities. Having a health insurance cover significantly increased the probability of utilizing antenatal care and delivery at a health facility by 30% and 28%, respectively. Also, wealth index, education level, age, marital status, region, and access to information were significant determinants of demand for voluntary health insurance. The study recommends that the government facilitates and fast-tracks the enactment and implementation of the national health insurance scheme, increases investment in the health sector, and

enhances access to health information. The study was self-sponsored; and supervised by Assoc. Prof. Bruno L. Yawe, and Dr. John Bosco Oryema



Conferment of the
Degree of Doctor of Philosophy in Economics

WAMALA Anthony
***Technical Vocational Education and Training (TVET), Employment
and Poverty in Uganda***

WAMALA Anthony investigated relationship between TVET and Employment, and the interactive effect of TVET and employment on poverty among working age population in Uganda. We used data from 2019/2020 household survey to fit binary choice models (Logit, Probit, 2SLS, Ivprobit and Biprobit) with keen attention to endogeneity. Results indicate that employment outcome significantly increases by 4.3 percent among TVET holders compared to non-TVET holders. TVET also significantly reduces the probability of being poor among employed individuals, whether TVET enters the poverty model singly, or upon interaction with employment characteristics (4.2%). This effect is more observed among those employed in the industrial and services sectors compared to those in agricultural sector, and among those working in formal compared to informal employment. Promoting TVET education and entry of TVET holders into formal, industrial and services sectors is critical for Uganda's unemployment and poverty reduction. The study was self-sponsored and was supervised Prof. Edward Bbaale and Dr. Ibrahim Mukisa

College of Health Sciences (CHS)

The Principal College of Health Sciences to present the following for the conferment of the degree Doctor of Philosophy



Conferment of the
Degree of Doctor of Philosophy

ACEN Ester Lilian (Ms.)

Effect of vitamin d binding protein gene polymorphisms and vitamin d bioavailability on cathelicidin expression in tuberculosis infection and disease

ACEN Ester Lilian explored the involvement of vitamin D pathway in the immune system. The reason for the set back of TB elimination is the latent TB infection individuals that create a large pool who may convert to active TB disease when immune- system is compromised. The study assessed how the vitamin D binding protein gene controls vitamin D levels which in turn regulate the expression of an antimicrobial peptide molecule cathelicidin (LL-37), responsible for killing pathogens including Mycobacterium Tuberculosis. This peptide may be used as a biomarker for diagnosing the latent and the active individuals. High levels cathelicidin levels were found among the active TB patients compared to the latent and those with no TB infection. High hypovitaminosis D was found in the Ugandan population with and without TB. The study was funded by MAPRONANO and HEPI; and was supervised by Prof William Worodria, Prof. Irene Andia Biraro, Dr. David Patrick Kateete and Prof Moses Joloba.



Conferment of the
Degree of Doctor of Philosophy

AYEBARE Elizabeth (Ms.)

Birth Asphyxia in Northern Uganda: associated factors, intrapartum care practices and the predictive value of umbilical artery lactate

AYEBARE Elizabeth investigated birth asphyxia in Northern Uganda with a focus on the associated factors, practices during labour and childbirth and the predictive value of umbilical artery lactate. The prevalence of birth asphyxia was high at 5.3%. She found that birth asphyxia was more likely to occur if the newborn's mother was an adolescent or unemployed. Other factors included; referral, a raised maternal white blood count, syphilis infection and complications of labour and childbirth. Foetal heart rate monitoring which is one of the prevention strategies for birth asphyxia was found to be sub-optimal. Challenges such as: lack of equipment/ supplies, poor referral systems and staff shortages were seen to affect the management of birth asphyxia. Furthermore, a low-cost point of care lactate test was found to be a good predictor of adverse newborn outcomes. The study findings will inform development of strategies for prevention and management of birth asphyxia. The study was funded by SIDA and Einhorn

Foundation; and was supervised by Prof. Grace Ndeezi, Assoc. Prof. Claudia Hanson, Dr. Jolly Nankunda, Assoc. Prof. Anna Hjelmstedt, and Assoc. Prof. Wibke Jonas.



Conferment of the
Degree of Doctor of Philosophy

JADWIGA Nowak (Ms.)

Evaluation of The Efficacy and Safety of Combining Carica Papaya Linn, Vernonia Amygdalina Delile, Artemisinin and Iodine as Potential Agents in The Management of Breast Cancer

JADWIGA Nowak studied the efficacy and safety of combining Carica papaya Linn (CP), Vernonia amygdalina Delile (VA), artemisinin (DHA) and iodine as potential agents in the management of breast cancer. She found out that the combination of CP + VA presented the strongest cytotoxic and synergistic activity against MCF-7 and additive activity on MDA-MB-231 breast cancer cell lines respectively and had a minimal cytotoxic effect on PBMCs compared to doxorubicin (DOX). Despite combination index (CI) >1 combination of CP+VA+DHA was included in the study based on its possible multi-target mechanism of action. The cytotoxicity of most efficacious formulations was found to be more selective towards cancer cells compared to DOX and generally non-toxic in rat models with regard to the effect on body weights and histopathology, however some haematological and biochemical parameters of tested rats showed significant changes. Additionally, UHPLC-MS analysis of Ugandan origin CP and VA provided new data on their phenolic composition giving a new research perspective on the possible mechanisms of their biological activity. It is recommended that the best treatment outcomes are further explored for development of an effective herbal therapy against breast cancer. This work was partially supported by the Medical University of Lodz, Poland



Conferment of the
Degree of Doctor of Philosophy

AMUMPAIRE Juliet Mwangi

Quality of Care for Common Childhood Infections in Low Level Private Health Facilities in Mbarara District, Western Uganda

MWANGA Juliet Amumpaire examined the quality of care for common childhood infections in low-level Private Health facilities in Mbarara District. Majority of childhood deaths in Uganda result from preventable conditions. About 50% of sick children are managed by lower level private health facilities yet the quality of healthcare they provide is not known. She found poor quality of health care for common childhood infections at these low-level private health facilities. While first-line medicines for treatment of the health conditions were available, and the clinical conditions often identified correctly, wrong treatments were given in over 50% of the consultations. Most facilities lacked clinical guidelines, in-service refresher training and supportive supervision and oversight by regulating bodies. These findings highlight the urgent need for the responsible stakeholders in health to employ innovate modes of knowledge and skills transfer to build capacity, provide oversight and support supervision in the low-level private health facilities. The study was funded by SIDA and supervised by Prof. Joan Nakayaga Kalyango, Prof. Grace Ndeezi, Assoc. Prof. Tobias Alfvén, and Assoc. Prof. Karin Källander.



Conferment of the
Degree of Doctor of Philosophy

EKWARO Obuku

Production and use of post graduate students' research to inform health policies: a multiple methods study of universities in Uganda & other low & middle income countries

EKWARO Obuku studied the numerous research projects completed by masters' students at Makerere University that simply 'gathered dust' in shelves, despite investing time and resources. Over 1,000 dissertations were produced between 1996 & 2010 at the College of Health Sciences, with only 20% published. Ekwaro systematically reviewed 27,000 dissertations in 10 countries in Africa, Asia, & South America, & confirmed this problem. Also, only 1 of every 70 dissertations (1.5%) were cited (used) in policy-related documents. Noteworthy, research from masters' students at Makerere University was used at international level, including World Health Organization, to solve medical/public health problems (AIDS, TB, Malaria). Further, masters' students at Makerere, Mbarara, Nkonzi & Mukono Universities said that they received more support in proposal development by their supervisors, compared to 'setting research priorities' or 'promoting use of their research', involving decision makers in Government or non-state agencies. Lastly, few students knew about Uganda's intellectual property processes. The study was funded by IDRC-Canada and was supervised by Prof. Nelson Sewankambo and Prof. John Lavis.



Conferment of the
Degree of Doctor of Philosophy

KATONGOLE Paul

Role of the Gut microbiome in Prostate cancer disease pathogenesis

KATONGOLE Paul studied the role of gut microbiome in Prostate cancer disease pathogenesis among Prostate cancer patients at the Uganda Cancer Institute. He found out that specific bacteria phyla and genus were associated with Prostate cancer disease and some of these bacteria were. He also explored the association between inflammatory cytokines and Immune checkpoint inhibitor molecules as potential biomarkers in Ugandan men with Prostate cancer. Paul found out that cytokines such as (IL-6 and IL-8) were significantly associated with aggressive Prostate cancer (high PSAs and Gleason scores) and noticed that PD-L1 (Programmed death-ligand 1) immune checkpoint molecule was significantly associated with high levels of Gleason scores. The study also reviewed the clinical characteristics of prostate cancer patients at the Uganda cancer institute and found out that more than 90% of Prostate cancer patients reporting to UCI had advanced disease and the median PSA levels were 100ng/l. The study was funded by African Development Bank Grant and NURTURE; and was supervised by Dr. Nixon Niyonzima, Dr. Sande James Obondo and Prof. Moses L Joloba.



Conferment of the
Degree of Doctor of Philosophy

KUTESA Annet (Ms.)

Forensic age estimation based on third molar eruption and development for Ugandan adolescents and young girls

KUTESA Annet explored the current practice of age estimation for adolescents and young adults undergoing criminal proceedings and develop age estimates standards for third molar eruption and development specific to the Ugandan population aged 10-22 years. The findings indicate that third molar eruption and tooth counting were among the routinely used methods by the health professionals. Although these were not applied uniformly and do not fully comply with International guidelines. Third molars were fully erupted as early as 13 years and by 18 years only half were fully erupted. Third molar eruption was influenced by the nutritional status, whereby the higher the body mass index (BMI), the earlier the eruption. Third molar development showed better accuracy (78%) in this population. It is therefore prudent to stop using the presence of the third molar as a definitive tool for estimating maturity and adopt third molar development techniques. The study was funded by NURTURE Project of Makerere University and was supervised by Assoc Prof Joan Kalyango and Assoc Prof Charles Mugisha Rwenyonyi.



Conferment of the
Degree of Doctor of Philosophy

KWIZERA Richard

Aspergillus sensitization and asthma in Uganda

KWIZERA Richard studied the burden of fungal asthma caused by *Aspergillus fumigatus* in patients from Mulago Hospital, where the frequency of severe asthma remains of significant public health importance. His study review revealed that fungal asthma is a significant problem in Uganda and Africa, but there remains a paucity of data on the epidemiology and associated complications. The *Aspergillus* point-of-care test demonstrated a poor diagnostic performance for the diagnosis of both allergic bronchopulmonary aspergillosis and severe asthma with fungal sensitization. He also found a high prevalence of *Aspergillus fumigatus* skin positivity in apparently healthy non-atopic individuals in Uganda. These data inform clinicians who provide care to asthma patients to consider fungal asthma as a major differential diagnosis among those progressing to severe disease despite receiving optimal standard of care. It also informs clinicians on the spectrum of clinical and socio-demographic factors associated with fungal asthma. The study was funded African Severe Asthma Program (ASAP), GlaxoSmithKline (GSK) African Non-Communicable Disease (NCD) Open Lab grant THRIVE-2 and Wellcome Trust and the UK Foreign, Commonwealth & Development Office, DELTAS Africa. The supervisors are Assoc. Prof David Meya, Dr. William Worodria, Dr. Freddie Bwanga, Dr. Robin Gore, and Prof Stephen Fowler.



Conferment of the
Degree of Doctor of Philosophy

LANYERO Hindum

Monitoring antibacterial use in children under five years in rural communities of northern Uganda

LANYERO Hindum studied the use of antibacterials in children under five years in rural communities of northern Uganda. She found the prevalence of antibacterial use among the under-fives to be high. The determinants of antibacterial use included getting treatment from a health facility, households located in peri-urban areas, having cough, fast breathing and having diarrhea with ARIs. She developed a qualitative LC-MS/MS method to detect 15 commonly used antibacterials in dry blood and dry urine spots. She also reported a low validity of care-givers' reports on intake of antibacterials by their children prior to healthcare facility visit. She recommends sensitization of healthcare workers and care-givers on appropriate use of antibacterials in this age group, the risks of self-medication and advantages of reporting the use of antibacterials prior to health facility visit. She further recommends the use of the LCMS/MS method by researchers carrying out similar studies. The study was funded by SIDA and was supervised by Dr. Sarah Nanzigu, Dr. Moses Ocan and Assoc. Prof. Jaran Eriksen.



Conferment of the
Degree of Doctor of Philosophy

MUHINDO Richard

Regular STI and HIV screening intentions and practices among sex workers in Uganda: the effect of text message reminders and peer education

MUHINDO Richard investigated the influences of regular STI and HIV screening intentions and practices among sex workers, and whether text message reminders and peer education would improve uptake of facility-based STI testing. He observed that relative to female sex workers, heterosexual male sex workers had low syphilis and HIV testing intentions and practices owing to negative testing attitudes, low self-efficacy, and non-accepting norms. In a non-randomized quasi-experimental study, bi-monthly text message reminders with weekly peer education sessions increased uptake of 3-monthly syphilis and HIV testing among female sex workers. These findings have implications for the global strategy to end AIDS epidemic by 2030, and STI epidemic by 2040. The study was funded by Fogarty International Center, Uganda Academy for Health innovation and impact funded by Johnson & Johnson Corporate Citizenship Trust; and was supervised by Dr. Edith Nakku-Joloba, Prof. Nazarius MbonaTumwesigye and Dr. Juliet Kiguli.



Conferment of the
Degree of Doctor of Philosophy

MUTATINA Boniface
Feasibility of a One-stop- shop for Evidence to Support Health Policy making in Uganda

MUTATINA Boniface examined the feasibility of a one-stop shop for evidence on health policy and systems in Uganda a resource for facilitating evidence-to-action. Through this work, he identified a seven-step process inventory for developing a one-stop shops for evidence on health policy and systems that could guide those interested in establishing such resources and was able to demonstrate its feasibility in Uganda and other LMICs. He was also able to identify important usability factors related to the design of the resource. He used the findings from this work to develop a theoretical framework for identifying and building a tailored index of local health policy-relevant documents to support country-level efforts towards evidence-to-action. This work was funded by IDRC-Canada and supervised by Prof. Nelson Sewankambo and Prof. John Lavis.



Conferment of the
Degree of Doctor of Philosophy

MWESIGWA Savannah
Whole Exome Sequencing Uncovers Genetic Predisposition to Pediatric HIV Disease Progression and Hyperhemolysis Syndrome

MWESIGWA Savannah used Whole-exome sequencing (WES) to investigate two disease phenotypes; the first was pediatric HIV Long Term Non- Progression (LTNP) where 813 children from Uganda and Botswana were studied using WES in a non-traditional fashion by analyzing off-target reads from mitochondrial DNA and viral DNA. The second phenotype was hyperhemolysis syndrome (HHS) in sickle cell disease (SCD) where 12 adults were studied using WES in the traditional approach by investigating the protein-coding variants. The study found that Anelloviridae co-infection was associated with an extended AIDS-free period. Additionally, there was some evidence for reduced mitochondrial DNA copy numbers with increased highly active antiretroviral therapy (HAART) duration and participant age. For HHS in SCD, rare variants implicating dysfunction in the innate immune system were identified. These results demonstrate a broad application of WES to investigate the host and viral genetic factors influencing a spectrum of disease phenotypes. The study was funded by Collaborative African Genomics Network (CAfGEN), H3Africa and National Institutes of Health and supervised by Prof. Moses Joloba, Dr. David Kateete and Prof Graeme Mardon.



Conferment of the
Degree of Doctor of Philosophy

NANTEZA Barbara Marjorie (Ms.)
Correlates of Safe Male Circumcision uptake in Gulu District, Mid northern Uganda

NANTEZA Barbara Marjorie conducted a mixed method which analyzed comprehensive knowledge (CK) of MoH approved messages of service providers, married women and males. Slightly more than a quarter of respondents were found to have inadequate CK although service providers had universal CK. Myths, beliefs and misconceptions were found to be associated with circumcision status. The study also examined enhancers and barriers at individual, household, community and district levels but barriers were more at all levels. Furthermore, the study sought to understand if people in Gulu district perceived themselves to be at increased risk for HIV infection and if so whether they knew that SMC could reduce that risk. After knowing this information, the study explored what the preferred SMC method, mode of delivery and the socio demographics of the service providers. Using the study findings through implementing partners, SMC uptake in this region has increased fivefold. The study was funded by Forgyat International Center and African Doctoral Dissertation Fellowship and supervised by Assoc. Prof. James Kalema, Assoc. Prof. Patrick Mucunguzi and Dr. Esther Katuura.



Conferment of the
Degree of Doctor of Philosophy

OKURUT Samuel
B cell Responses, Immune Modulation, and Survival Among Patients with HIV-Associated Cryptococcal Meningitis

OKURUT Samuel studied the immunopathogenesis of HIV-associated cryptococcal meningitis. He interrogated the B cell compartment and the stimulated immune responses in the central nervous system in collaboration with clinical and microbiologic factors. Using Bayesian and spatial regression models, the study found more cases of HIV-associated cryptococcal meningitis reported among males, but more case-fatality reported among females. Biological gender-influenced survival-specific activated neuroimmune signatures. Correlates of survival including the proportion of PD-1 expressing plasmablasts/plasma cells, circulating CSF white cells, peripheral CD4/CD8 T cells, CSF CXCL10/CCL11 chemokines, CSF Th1 - IL-2, IFN- γ /TNF- α cytokines were elevated among survivors and correlated with lower CSF cryptococcal fungal burden. Advances to the use of immune restoration treatment and developments to lead immune-based diagnostic, prognostic, and therapeutic interventions using elucidated novel CXCL10/CCL11 chemokines and Th1 -IL-2, IFN- γ /TNF- α cytokines pathways could benefit patients to lower cryptococcal fungal burden and improve survival. The study was funded by GlaxoSmithKline - Trust in Science Africa and Fogarty International Center and National Institute of Health and was supervised by Prof. David B. Meya, Prof. Edward N. Janoff, Prof. Yukari C. Manabe and Prof. Joseph O. Olobo.



Conferment of the
Degree of Doctor of Philosophy

ONGOLO-ZOGO Pierre
Evaluating Initiatives to Support Evidence-Informed Health System Policy-making in Cameroon and Uganda: Case Studies of EVIPNet Cameroon and REACH-PI Uganda

ONGOLO-ZOGO Pierre documents two pioneering Knowledge Translation Platforms (KTPs) hosted in government-affiliated institutions in Cameroon and Uganda since 2006. His work presents i) development of a framework combining health policy analysis, political science & knowledge translation; ii) changes in climate for Evidence-Informed Health System Policy-making (EIHSP) in both countries over 12-years before and after establishment of the KTPs; iii) EVIPNet Cameroon and REACH-PI Uganda emerged as pioneering KTPs boosted by the global push for EIHSP and the post-MDG 2015 agenda; iv) both KTPs were instrumental in reinforcing the conducive climate for EIHSP especially in terms of enhancing community and civil society participation to health policy debates and integrated equity considerations, featuring the intricacy of politics, organizational and individual factors at the research-to-policy interface in Cameroon and Uganda striving to achieve MDGs and (v) KTPs had direct and indirect influences on policymaking processes and decisions through interest groups and researched-ideas. The study was funded by IDRC-Canada and was supervised by Prof. Nelson Sewankambo, Prof. John Lavis and Prof Goram Tomson.



Conferment of the
Degree of Doctor of Philosophy

SSEREMBA Emmanuel
Hepatitis B in Uganda: Transmission and prevention strategies among infants and HIV-infected Adults

SEREMBA Emmanuel examined the transmission and prevention strategies of this infection in two Ugandan populations (infants and HIV-infected adults) that are at a high risk for grave consequences of this infection -scarring of the liver, liver failure and cancer. His study revealed that disease transmission prior to 6 weeks of age when the first HBV vaccine dose is currently administered to infants in Uganda is rare. It revealed ongoing disease transmission among HIV-infected adults contrary to the traditional thinking that this disease is mainly transmitted in early childhood in SSA. In addition, the inclusion of either or two medications (lamivudine/Tenofovir) for the treatment of HIV conferred protection against HBV acquisition. The vaccine against HBV was found to be effective among HIV-infected persons with sound immunity (CD4 count >200 cells). The study was funded by NIH and Uganda Cancer Institute; and was supervised by Assoc Prof. Ocamo Ponsiano, Prof. Mayanja-Kizza Harriet and Prof. Casper Corey.

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Conferment of the
Degree of Doctor of Philosophy

ZAWEDDE Stella (Ms.)

Developing A Theory Informed Intervention to Improve Linkage to Treatment for Patients Diagnosed with Tuberculosis Using XpertMtb/Rif Testing in Central and Eastern Uganda.

ZAWEDDE Stella examined pre-treatment loss to follow-up for tuberculosis (TB). The grounding for the study is based on the fact that the loss of patients between TB diagnosis and TB treatment initiation is a pervasive problem in low-and-middle income settings. Following a series of studies to quantify and understand the reasons for pretreatment loss to follow-up in the Ugandan setting, an intervention was designed to decrease pretreatment loss to follow-up for TB at public health facilities in Uganda. The intervention, which included: a) educating healthcare workers, b) restructuring of the work environment (to reduce sputum tests results turnaround time) and c) enabling quick and efficient communication between healthcare workers and patients was piloted at Jinja regional referral hospital. The intervention resulted in a 30% increase in treatment initiation among patients diagnosed with TB. The study was funded by National Institutes for Health; and was supervised by Dr. Achilles Katamba, Dr. Barbara Castelnovo, Professor Yukari Manabe and Professor Adithya Cattamanchi.

College of Engineering, Design, Art and Technology (CEDAT)

The Principal College of Engineering, Design, Art and Technology to present the following for the conferment of the degree of Doctor of Philosophy



Conferment of the
Degree of Doctor of Philosophy

KAYIWA Ronald

Activated carbon from cassava peels for removal of active pharmaceutical ingredients from wastewater

KAYIWA Ronald studied the potential of yielding activated carbon from cassava peels that can remove pharmaceuticals from water systems. Carbamazepine, Trimethoprim, and Clarithromycin were the targeted pharmaceuticals. He modified the process of synthesizing activated carbon from the peels which yielded activated carbon with the highest ever reported surface area and pore volumes for cassava peel-based activated carbon at 1684 m²/g and 0.756 cm³/g respectively. The study proved for the first time ever that cassava peel-activated carbon could adsorb pharmaceutical residues to about 95% removal for a 2.0 g/L dosage and capacity of 25.907, 84.034, and 1.487 mgg⁻¹ for Carbamazepine, Trimethoprim, and Clarithromycin respectively. The Kayiwa Equation was also developed from the techno-economic analysis of the precursor-activated carbon value chain in this study. This study was funded by the Africa Centre of Excellence in Materials, Product Development & Nanotechnology and supervised by Dr. Hillary Kasedde and Dr. Michael Lubwama.



Conferment of the
Degree of Doctor of Philosophy

KYOSIMIRE Doreen

Self-Help Housing Breeds No Contempt: Architecture, Women, Agency and the Transformation of Masese Women's Self-Help Housing Project in Jinja, Uganda

KYOSIMIRE Doreen explored discourse on gender, architecture and women's agency in low-cost housing. The study employed an inter disciplinary research design with methods drawn from historical, and architectural approaches. The study linked history, theory and practice to improve the methodology for architectural practice. It placed the question power of women and agency in a comprehensive historical framework and approached it from H el ene Frichot's proposition that "feminist work crafts a different kind of architecture". A traditional proverb which posits that self-help housing breeds no contempt, was leaned on to find an appropriate position for the study. The study demonstrates that self-help housing is an effort made by household members concerning the planning, financing and construction of their housing context in which widowhood and prostitution have gained new meanings such as land lordship. This study was funded by SIDA and supervised by Prof Barnabas Nawangwe, Dr. Assumpta Nnagenda-Musana and Dr. Henry Manyire.



Conferment of the
Degree of Doctor of Philosophy

TWINOMUCUNGUZI Rutaro Baineke Felix
***A Socio-Technical Hazard Analysis of Trace Organic Contaminants
in Peri-Urban Shallow Groundwater in Uganda***

TWINOMUCUNGUZI Rutaro Baineke Felix investigated socio-technical factors influencing the distribution of trace organic contaminants (TrOCs) and the associated environmental risks in peri-urban shallow groundwater in Uganda. The study analysed the spatial and temporal variations of antibiotics, pesticides and hydrocarbons in shallow groundwater underlying Bwaise and Wobulenzi and the socio-institutional drivers of contamination. Total antibiotics measured up to 3,700 ng/L, depicting significant statistical association with physico-chemical and microbial parameters associated with on-site sanitation (E. coli, nitrates, chlorides and sodium). Antibiotic residues presented a high risk for antibiotic resistance selection at 65% of the sampled sources in Bwaise. Pesticides measured up to 2,400 ng/L, exceeding European Commission guideline value (500 ng/L) at 75% of the locations in Wobulenzi. In both areas, hydrocarbons were detected at low concentrations to cause adverse health impacts (<700 ng/L). The study recommends improved monitoring and regulation of on-site sanitation and agricultural practices to mitigate the health risks associated with TrOCs. The study was funded by T-GroUP Research Project and Ministry of Water and Environment; and was supervised by Prof. Frank Kansime and Dr. Robinah Kulabako.



Conferment of the
Degree of Doctor of Philosophy

WERE Andrew Gilbert
***How to plan and manage street vending activities in Central
Division of Kampala City***

WERE Andrew Gilbert focused on how street spaces could be planned, managed for street enterprises. Street vending offers employment with linkages in the formal and informal sectors, it comprises the distribution value chain for goods and services. He discovered that: street vending is practiced on all streets, it is driven by the intensity of pedestrian and vehicle traffic; that street spaces are valorized depending on their location and intensity of human traffic and numerous actors are involved in the street vending industry, with diverse interests that have made street vending difficult to manage. The results offer insights into decentralized-community led street planning, design, management and policy guidelines for street vending. Were developed the spontaneous location theory and the moralist theory as his contribution to the persistence of street vending. The study was self-sponsored with support from Makerere University; and was supervised by Prof. Barnabas Nawangwe and Assoc. Prof. Stephen Mukiibi.



Conferment of the
Degree of Doctor of Philosophy

YIGA Andrew Vianney
***Thermal Stability of Fiber-reinforced polylactic acid composites
for flame retardant applications***

YIGA Andrew Vianney sought to develop alkali modified rice husks fiber-reinforced polylactic acid (PLA) composites with clay fillers using compression molding technique. Rice husks were treated with Magnesium hydroxide and Sodium hydroxide alkali solutions at 1-4wt.% concentrations, in 5:1 and 15:1 liquor ratios to modify their surface. Box-Behnken Design optimization technique using Design Expert software was used to set up experiments from 5 factors namely. PLA Composites had enhanced mechanical properties with incorporation of clay and rice husks material. TGA showed that incorporation of filler/fiber delayed weight loss and increased char residues, hence higher thermal stability and enhanced flame retardancy. PLA composites with low energy barrier favoured formation of an activated complex, due to low difference between activation energy and enthalpy. The current study revealed that rice husks fiber-reinforced PLA composites have good prospects for utilization in applications where thermal safety, health and security are desired. The study was funded by Volkswagen Foundation and supervised by Dr. Michael Lubwama and Dr. Peter Wilberforce Olupot.

College of Natural Sciences (CoNAS)

The Principal College of Natural Sciences to present the following for the conferment of the degree of Doctor of Philosophy



Conferment of the
Degree of Doctor of Philosophy

KAJUMBA Pamella Katalihwa (Ms.)

Development and Assessment of a Cooking Unit Integrated with Solar Thermal Energy Storage System

KAJUMBA Pamella Katalihwa investigated the thermal performance of a cooking unit integrated with thermal energy storage suitable for solar thermal applications. The system consisted of a thermal energy storage tank, cooking unit and heater unit. Sun flower oil was used as both the heat storage material and heat transfer fluid. The heat transfer was such that hot oil flowed by gravity from the TES tank through a pipe to the bottom of the cooking unit. Results revealed that a thermal energy store capacity of 14 L of hot oil at temperatures of about 200 o C is sufficient for the daily cooking energy needs of a household of 5 persons. The institutional survey revealed that about 3 kg of firewood was used to cook 1 kg of dry beans. Therefore, a transfer to the storage based cooker for could lead to significant reduction in terms of firewood fuel consumption. The study was funded by SIDA and supervised by Dr. Denis Okello, Dr. Karidewa Nyeinga and Prof Ole Jorgen Nydal.



Conferment of the
Degree of Doctor of Philosophy

MUKALAZI Herbert

A Mathematical Model for Dynamic Stochastic Asset Liability Management of Uganda's Retirement Benefit Schemes

MUKALAZI Herbert projected the long term demographic and financial evolution of the Parliamentary Pension Scheme (PPS) and the Bank of Uganda Defined Benefits Scheme (BoUDBS). The projection results show that both the PPS and BoUDBS are not sustainable over the long term, the accumulated assets cannot fully cover the liabilities. A mathematical model which employs stochastic optimization for optimal asset allocation of the funds was developed and applied to the financial planning problems of the PPS and BoUDBS. The model results show that maximum allowed portion of the asset should be invested in government securities, and the remaining portion to equity and fixed deposits. Only mandatory allocation should be invested in real estate, corporate bonds and loans. Even with optimal asset allocation, deficits arise requiring remedial contributions from the fund sponsor. The study recommends adjustment of benefits indexation parameters for the PPS, while the BoUDBS was closed to new numbers. The study was funded by SIDA and supervised by Prof Torbjörn Larsson, Prof. Juma Kasozi and Dr. Fred Mayambala.



Conferment of the
Degree of Doctor of Philosophy

NANKINGA Loy (Ms.)

Mathematical Modelling of Harvesting of a Stage and Size - Structured Fish Population: The Case of African Catfish and Nile Tilapia

NANKINGA Loy developed a stage-structured mathematical model to determine the optimal harvest size of African catfish. She found that, harvesting juveniles of size (10-29.9cm) and adults of size (30-170cm) under equal harvesting rates, gives the maximum sustainable yield. Nile tilapia was included in the model, to compare financial profits and biomass outtake in a single and two species systems. Her findings showed that harvesting in a two species system, yields more biomass outtake and financial profits than harvesting in a single species system. The study recommends that juveniles of size (1-9.9cm) and adults that have reached a maximum size of 170cm should not be harvested for sustainability and that poly-culture of both African catfish and Nile tilapia should be implemented for better revenue. The study was funded by SIDA and supervised by Assoc. Prof. Linus Carlsson, Prof. Livingstone S. Luboobi, Prof. Joseph Y.T. Mugisha and Assoc. Prof. Betty Nannyonga.



Conferment of the
Degree of Doctor of Philosophy

NAYEBARE Gumoteyo Jacintha (Ms.)

Loading and Mobility of Faecal and Chemical Contaminants to Shallow Groundwater: Evidence from Lukaya Town, Central Uganda

NAYEBARE Gumoteyo Jacintha studied the movement of faecal contaminants from pit latrines to shallow groundwater in Lukaya town where there is conjunctive use of the subsurface as a source of water and repository of faecal matter. Results revealed a substantial conjunctive use of the shallow subsurface for both a supply of water and a repository of faecal waste. Construction and maintenance of shallow wells and sanitation facilities are inadequate. Public awareness of basic hygiene is high but is not commonly practiced. Community hygiene is inadequate and may contribute to reported incidences of diarrhoea diseases. Gross faecal contamination by E. coli is observed in 55% of improved water sources that comprise primarily shallow hand-dug wells where the majority of on-site sanitation provision is unimproved. Reliance on shallow wells merit urgent investment in the governance and regulation if low-income countries are to reach the SDG 6 target by 2030. The study was funded by The Royal Society (UK), Department of International Development (DFID), Germany Academic Exchange Services (DAAD); and was supervised by Dr. Michael Owor, Dr Robinah Kulabako, and Prof. Richard Taylor.



Conferment of the
Degree of Doctor of Philosophy

OJELEL Samuel

Ethnobotany, nutritional value and floristic diversity of wild edible plants in selected central forest reserves of north eastern Uganda

OJELEL Samuel studied ethnobotany, nutritional value of wild edible plants and floristic diversity in selected central forest reserves of north eastern Uganda. The study registered 100 wild edible plants in eight reserves. The nutritional potential of selected wild edible plants could present a low cost and easily accessible source of food. The population populations of *Tamarindus indica* (Tamarind) and *Vitellaria paradoxa* (Shea tree) have positive recruitment symbolizing healthy regeneration while that of *Balanites aegyptiaca* (Desert date) does not. The reserves harbour 417 (8.7%) of the known vascular plant species in Uganda. Trials on raising planting material of wild edible plants from seeds and vegetative material, developing monitoring plans for multi-purpose tree species and strengthening the protection of the reserves. The study was funded by DAAD and supervised by Assoc. Prof. James Kalema, Assoc. Prof. Patrick Mucunguzi and Dr. Esther Katuura.



Conferment of the
Degree of Doctor of Philosophy

OKELLO Alex

Performance of Selected Natural Dyes in Dye Sensitized Solar Cells

OKELLO Alex explored the possibility of using natural dyes to produce electricity. While plants absorb light to make their own food, he used the absorbed light to produce electricity. Dyes extracted from leaf stocks of cassava plant among others, were used to absorb sunlight, as plants do. The absorbed sunlight was later converted into electricity through some chemical processes. The solar devices, if improved further can be used in solar watches, calculators and solar panels. This would be a cheaper alternative to the currently expensive silicon based solar panels. The study was funded by the Makerere University Africa Center of Excellence in Materials, Product Development, and Nanotechnology (MAPRONANO ACE) and the International Science Program (ISP) of Sweden through the Materials Science and Solar Energy Network for Eastern and Southern Africa (MSSEESA) under UG01 project. The study was supervised by Dr. Denis Okello, Dr. Jane Namukobe, and Prof. Julius M. Mwabora.



Conferment of the
Degree of Doctor of Philosophy (Mathematics)

KIMULI Philly Ivan
The Morphic Property in Modules and Near-Rings

KIMULI Philly Ivan introduced and studied the classes of left-morphic near-rings and weakly-morphic modules. He explored the properties of these classes and compared them with other related notions of regularity, reduced modules and morphic property. The study generalizes some results on morphic modules and morphic rings to weakly-morphic modules and left-morphic near-rings respectively. Using weakly-morphic modules, different forms regularity in modules are characterized. The results prove that, under some special conditions, weakly-morphic property combined with reduced submodules determines the kind of regularity a module will have. Lastly, the study characterizes the left-morphic near-ring elements and proves that the class of left-morphic regular near-rings is properly contained between the classes of left strongly regular and unit-regular near-rings. This work was funded by the Makerere-Sida Bilateral Research Program and was supervised by Dr. David Ssevviiri and Dr. Alex Samuel Bamunoba.

College of Computing and Information Sciences (CoCIS)

The Principal College of Computing and Information Sciences to present the following for the conferment of the degree of Doctor of Philosophy



Conferment of the
Degree of Doctor of Philosophy in Information Systems

BBOSA Francis Fuller
Reliability of Predictions Using Hybrid Algorithms and its Application to Dimensionality Reduction

BBOSA Francis examined a complex problem associated with the reliability of predictions emanating from independent data mining techniques. This could be attributed to cross-cutting weaknesses of individual techniques such as collinearity, biasedness due to underfitting and overfitting, noise accumulation as well as failure to take into consideration class imbalance in imbalanced data and thus affecting the reliability of predictions emanating from these models. The decision tree was employed for important attribute extraction based on the C4.5 algorithm and its gain ratio values were used as input weights to construct a weighted Bayesian classifier. The proposed hybrid model outperformed the independent decision tree and Bayesian classifiers on all demonstration datasets respectively. Hence merging several independent homogeneous predictive data mining techniques may enhance the accuracy of the estimates leading to reliable predictions. The study was funded by Makerere University through the Staff Development, Welfare and Retirement Benefits Committee and supervised by Assoc. Prof. Josephine Nabukenya, Assoc.Prof. Ronald Wesonga and Dr. Peter Nabende.



Conferment of the
Degree of Doctor of Philosophy in Information Systems

MUGEJJERA Emmanuel
A Framework for Information Management in E-agriculture

MUGEJJERA Emmanuel developed a framework for information management focusing on agricultural advisory information for small scale farmers. The Design Science research method was used to guide the development of this framework. Exploratory factor analysis and structural equation modeling were used in the analysis and design of the framework respectively. Findings indicate that the critical success factors for management of agricultural advisory information are: People and Technology; Funding, Processes, and Regulations; and Information use outcomes and continuity. The study provides practical suggestions to policy makers in information management in e-agriculture in Uganda's context. The study was funded by

Uganda Martyrs University ACALISE World Bank Project and supervised by Assoc. Prof. Gilbert Maiga and Dr. Agnes Nakakawa.



Conferment of the
Degree of Doctor of Philosophy in Information Systems

NDAGIRE Lillian (Ms.)
A Framework for Implementing IT Governance in Uganda's Higher Institutions of Learning

NDAGIRE Lillian's study developed a framework to implement IT governance in HILs in Uganda (IGHU). The study revealed that structures and processes were poorly implemented, whereas relational mechanisms were fairly practiced. IT governance maturity was at level two (repeatable), indicating processes apply comparable procedures used by various people responsible for a similar job; however, official communication of standard practices is limited, resulting in errors. It was recommended that top managers should directly support IT projects and policies that improve IT governance. The study was funded by Swedish International Development Cooperation Agency (SIDA) and was supervised by Assoc Professor Maiga Gilbert and Dr. Oyo Benedict.



Conferment of the
Degree of Doctor of Philosophy in Information Technology

NAGWOVUMA Margaret
A Framework for Performance Evaluation of Electronic Health Information Systems

NAGWOVUMA Margaret investigated factors, status, reasons and issues associated with evaluating performance of eHealth information systems in Uganda. Her study revealed that minimal evaluation of these systems is done, due to lack of guidelines to facilitate the evaluation process. Accordingly, major outputs of this research were: a framework for performance evaluation of eHealth information systems; a performance evaluation checklist for eHealth Information Systems; and a corresponding prototype. Through rigorous evaluation, the study established that the designed framework was understandable, applicable and functional to fit in a developing economy context. The study, recommended that there is need for adoption of mechanisms to support performance evaluation of existing and future eHealth Information System initiatives. The study was funded by SIDA and Butiiko group; and was supervised by Assoc. Professor Maiga Gilbert, and Dr. Nakakawa Agnes.



Conferment of the
Degree of Doctor of Philosophy in Information Technology

ODONGTOO Godfrey
An Integrated Water Resource Management Information and Communication Technology Model: A Case of Lake Victoria Basin

ODONGTOO Godfrey investigated the challenges of poor water resource management in Lake Victoria Basin and how an integrated water resource management ICT model can be used to address them. The model was found to address the challenges of inadequate stakeholders' participation, inadequate accountability, poor financial and budgetary management and lack of transparency. The study recommended an improved enforcement of rules and regulations, increased involvement of communities, improved awareness creation, increased fight against corruption and enhanced communication strategies among stakeholders. The study further recommended water resource management frameworks, water resource management policies and effective decision making as key variables in the design of an integrated water resource management intervention. The outcome of this study can help different stakeholders such as communities, managers, policy makers and decision makers comment, share, receive and report water management issues in their localities through the model. The study was funded by SIDA and supervised by Prof. Okidi Peter Lating and Dr. Ssebuggwawo Denis.



Conferment of the
Degree of Doctor of Philosophy in Information Systems

ONGAYA Kizito
Spatial-Temporal Model for Emerging Disease Surveillance: Case Study of Nodding Syndrome

ONGAYA Kizito developed a model for emerging disease surveillance with focus on nodding syndrome. Based on triangulation theory, the study used various modelling techniques (GIS, Regression, and Unified Modelling Language) to understand the relationships between nodding syndrome and environment. The study traced that nodding syndrome in Northern Uganda as early 1990s with latest cases of in 2017. The research discovered that blackfly seasonal abundance was influenced by rainfall seasons, and closely linked to seasonal onsets of nodding syndrome. There is a close relationship between nodding syndrome and associated-epilepsy a condition termed as (scaffolding pattern). This therefore has policy implications on surveillance and blackfly control program. The study proposed a model for surveillance of diseases with unknown cause based on spatial analysis and data triangulation. The study was funded by SIDA and supervised by Dr. Benedict Oyo and Dr. Emily Bagarukayo.



Conferment of the
Degree of Doctor of Philosophy in Software Engineering

MUBANGIZI Martin Gordon
Modelling and Prediction of Disease Incidence Using Dynamic Bayesian Networks

MUBANGIZI Martin Gordon investigated how Dynamic Bayesian Networks (DyBNs), a mature and tested technology in other fields, can be applied in epidemiology to model and predict disease incidences using a case of Malaria and Cholera in Uganda. DyBNs are probabilistic graphical models that can model both temporal and spatial patterns but also provides a way to reason about uncertainty by modelling an underlying disease process. A notable contribution of this work is a novel probabilistic framework for combining the two tasks of automatic disease diagnosis and disease density estimation. This framework allows both tasks to be carried out seamlessly in real-time, and this work demonstrated improvement in results when performed together. This work contributes to the SDG target 3.1 efforts, especially in ending epidemics and combating waterborne diseases. A policy recommendation for Uganda, is to realize this target is to embrace such innovations and address data quality, sharing and availability challenges The study was funded by Microsoft, Google, IBM and AAA-12 Computing Community; and was supervised by Dr. John Quinn, Dr. Ernest Mwebaze and Dr. Joyce Nakatumba.



Conferment of the
Degree of Doctor of Philosophy in Software Engineering

NAKIRIJJIA Justine (Ms.)
Scope Complexity Management When Planning Public Sector Software Projects: Adaptive Framework with Deep Neural Network Science

NAKIRIJJIA Justine studied Planning Public Sector Software Projects (systems) to manage scope complexity and stakeholder expectations to gain Project value and Success. Public Sector Projects characterize layers of stakeholders with unique expectations. These involve Requirements and Relationships that build complexity. When stakeholder expectations and project goals don't align, disasters happen. The study proposed an 'Adaptive Framework based on Predictive Modeling with Artificial Intelligence and Network Models, and Requirements Engineering Architecture (REA), for Scope Complexity Management and Expectations Alignment with Project Goals'. The framework's foundations are the Recurrent Neural Network model to assess the Quality of Multilevel Requirements, the Network modeling to specify the origin, nature, and impact of product scope complexity, and the Architecture(REA) engages stakeholders to structure Requirements. When tested on Uganda's Electronic Medical Records, the framework showed promising results. The study was funded by Sweden-Makerere Fellowship, and supervised by Dr. Joseph Kibombo Balikuddembe and Dr. Denis Ssebugwawo.