

Inspiringue





CONTENTS

Artificial Intelligence and Drug Discovery

Meeting Two Needs of the Poor in African Cities



Rapid Detection
Method for Buruli Ulcer

Innovate UG: Technology Initiatives Driving Entrepreneurship



10

Student Led Research Initiatives

- Uterine Contraction Detection System
- Development of Mobile App
- Cardiac Arrest Detector

Artificial Intelligence Challenge for Tertiary Students



13

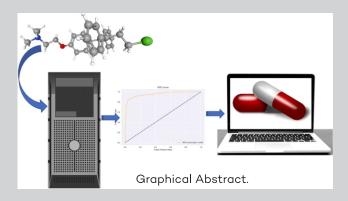
Funding News

Awards and Appointments

UG TEAM PIONEERS ARTIFICIAL INTELLIGENCE AND DRUG DISCOVERY BY DEVELOPING EBOLApred FOR ANTI-EBOLA VIRUS DRUG DISCOVERY



A team of scientists at the University of Ghana (UG) led by **Prof. Samuel Kojo Kwofie** of the Department of Biomedical Engineering, School of Engineering Sciences has recently published a pioneering work on artificial intelligence (AI)-based anti-Ebola virus drug discovery. The pioneering AI-based drug discovery project called "EBOLApred" was published in the Elsevier journal Computational Biology and Chemistry. EBOLApred is also implemented as a web-based application to predict anti-Ebola virus drugs and inhibitors. The application is freely available online via



The UG team developed computer-guided drug discovery methods aided by AI-based machine learning algorithms. The algorithms can be used to quickly screen millions of compounds computationally to shortlist promising therapeutic molecules for drug development. This has the potential to shorten the laborious and lengthy experimental testing that chemical compounds must undergo in order to become drug candidates as well as decrease the cost involved.

Ebola virus disease (EVD) is a fatal disease that affect humans who encounter the body fluids of infected

persons or infected animals including fruit bats, chimpanzees, and antelopes. There have been several outbreaks in Central Africa from 1976 to date with case fatality rate of 40-80%. The biggest outbreak to date occurring in West Africa for the first time in 2014-2016 claiming more than 11,000 lives in Liberia, Sierra Leone, and Guinea. There are persistent threats of resurgence of the disease in Africa. Currently, there are few anti-viral treatments available with limited successes. The deployment of EBOLApred is timely since it provides the platform to speed up development of anti-Ebola virus drugs. This is an initiative driven by Africa based scientists deploying innovative solutions to diseases often not receiving adequate attention.

Amid the threat of EVD, the efforts of scientists geared towards finding the cure to a debilitating disease is a crucial step in the right direction. The University of Ghana is proud of the feat achieved by the team.

Prof. Kwofie is also a Bioinformatics Coordinator at the West African Centre for Cell Biology of Infectious Pathogens (WACCBIP) and Department of Biochemistry, Cell and Molecular Biology. Other members of the team are Prof. Michael David Wilson and Mr. Joseph Adams of the Department of Parasitology, Noguchi Memorial Institute for Medical Research (NMIMR); Mr. Kwasi Agyenkwa-Mawuli at WACCBIP; and Mr. Odame Agyapong who was at the Department of Biomedical Engineering and NMIMR.

MEETING TWO NEEDS OF THE POOR IN AFRICAN CITIES: INCREASING ACCESS TO SAFE DRINKING WATER AND REDUCING ENVIRONMENTAL POLLUTION WITH PLASTICS



The School of Public Health (SPH)(UG) in collaboration with the Jaramogi Oginga Odinga University of Science and Technology and the Victoria Institute for Research on Environment and Development (VIRED) International (Kenya), University of Southampton (UK), have embarked on a project that aims to address the dichotomy between delivery of safe drinking water and management of waste. The Water and Waste Project seeks to expand the delivery of safe water, and waste management service access to 'off-grid' urban populations in Africa.

The project is a UK Research and Innovation (UKRI) Collective Fund award with support from the Economic and Social Research Council UK (ESRC) and Global Challenges Research Fund (GCRF). The University of Ghana team is led by **Professor Mawuli Dzodzomenyo**, Head, Department of Biological, Environmental, and Occupational Health.

The demand for water, sewage, electricity and waste collection services has far outstripped the capacity of many municipalities in Sub-Saharan Africa to provide these basic services to all. In most cities, it is the poor who are paying most to purchase replacements for the lack of safe tap water and reliable waste collection. They are thus the 'off-grid' populations targeted by this project. Private sellers of water fill a key gap in supplying urban off-grid populations with safe drinking water, sold in plastic bags and other containers of different sizes. In many cities, the sale of packaged water (sold in plastic bags or bottles) has

become a major industry and is apparently providing relatively safe water to those previously without access. The very success of this industry has led to a large increase in plastic waste being dumped in streets, drains and rivers. Without waste collection and recycling services, this plastic waste is posing a new set of environmental hazards to the very people least well-equipped to manage these new risks. Elsewhere, water is sold in jerrycans, generating much less plastic waste but risking contamination as it is stored and handled.

This project, centred on two field studies in Accra, Ghana and Kisumu, Kenya aims to document the chain of connections between the production and sale of clean drinking water in plastic containers and the accumulation of plastic waste in public spaces. In Ghana, the majority of water sales are in plastic bags or sachets, but these have been banned in Kenya so other containers are used for water distribution. In addition to the waste from water sales, a lot of foods are sold in plastic wrappings and bags. When discarded, these plastics contribute further to environmental hazards which are particularly acute in low-income communities without the resources to support organised waste collection or recycling. Over 25% of the population spends more than half an hour per round trip to collect water, 91.8% of urban households in SSA have access to piped or protected groundwater sources, and 46.2% have safely managed water. 115 people in Africa die every hour from diseases linked to poor sanitation, poor hygiene and contaminated water.

HOW WILL THIS HELP?

The project should generate valuable information about where waste comes from and how it enters the environment. In addition, it aims to quantify the contribution of informal collectors to waste management in Greater Accra and Kisumu County and the challenges that they face, thereby making the case for greater support for such businesses. It should also generate evidence on strategies to increase safe water access in off-grid urban areas whilst reducing the entry of plastics into the environment. Through the consortium, the project will develop research capacity among postgraduate students at African universities participating in the project, whilst also forging longer term research collaboration between the African collaborators. In light of the knowledge gained on waste collection and water vending, the project aims to provide evidence on the trade-offs between water safety at point-of-consumption, affordability, and the entry of unmanaged waste into the environment.

WHAT WILL THE PROJECT DO?

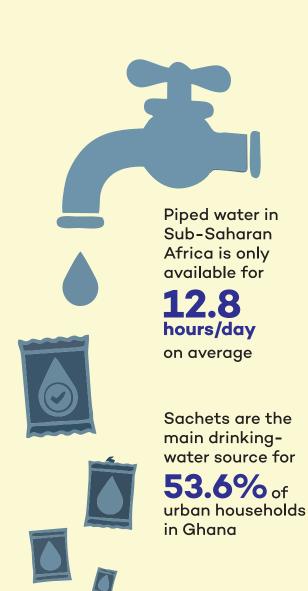
The project model proposes to adopt an integrated approach to the purchase of water and foodstuffs and the disposal of their containers and wrappings. Both Ghana and Kenya already have nationwide household surveys that collect data on the food and goods people consume and the services available within communities. . These surveys have not been connected to the problem of waste management. The plan is to visit marketplaces, buy foods and then record packaging and organic waste. By combining this information with the household survey data, they can work out how much domestic waste like plastics gets collected and how much is discarded

or burned, ultimately entering the atmosphere or oceans. In Ghana, survey of informal waste collectors in urban Greater Accra will be conducted to determine the extent to which these small businesses support waste collection and recycling (particularly plastic from bagged water) to aid local government to identify gaps in waste collection coverage. They believe that highlighting the important role of small waste collectors could lead to greater business support for such collectors. An evaluation will be conducted to ascertain whether community education campaigns to encourage domestic waste recycling, reduce the amount of waste and plastic observed in the local environment. Such campaigns are currently pursued by several local charities with support from the Plastic Waste Management Project.

In Kenya, where water is usually sold in jerrycans rather than bagged, the jerrycan water often gets contaminated. The work plan will find out whether this jerrycan water is safer under an arrangement known as delegated management. This involves a water utility passing on management of the piped network to a local business in off-grid areas, so as to reduce vandalism of pipes and bring water closer to slum-dwellers. A comparison of water quality in areas with and without this arrangement will observe if it makes the water sold safer. Watersellers and consumers will be engaged together to find and test ways of reducing contamination of water between a jerrycan being filled and water consumption at home.

The project addresses two major challenges that are fundamental to sustaining healthy livelihoods within vulnerable communities. Central to achieving this objective is the inclusion of water vendors and consumers to develop solutions, rather than imposing solutions upon communities. In working together with stakeholders to deliver safe water and mitigate the effects of pollution from plastic waste, the project will explore viable alternatives, for example, the potential of containers designed to keep water cleaner.

It is hoped that the implementation of recommendations from the project will create the intended impact and meet the needs of disadvantaged communities in African.



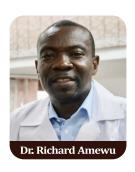


57% of Household waste in urban Sub-Saharan Africa is not collected



115 People in Africa die every hour from diseases linked to poor sanitation, poor hygiene and contaminated water

RAPID DETECTION METHOD FOR BURULI ULCER-FLUORESCENT THIN LAYER CHROMATOGRAPHIC METHOD



Buruli Ulcer (BU) is one of the neglected tropical diseases found mainly in sub-Saharan Africa but also in Australia and Japan. The causative agent of BU is *Mycobacterium ulcerans*. *M. ulceran* produces a large macrocyclic lactone



known as mycolactone A/B which is cytotoxic and causes tissue necrosis, painlessness,

and immunosuppression in infected patients. Mycolactone A/B diffuses outside the sites of the original infection and plays an important role in the virulence of BU and is attributed to the pathology of the disease. Furthermore, mycolactone A/B is only produced by M. ulceran. The toxin is therefore an important bioamarker for the diagnosis of BU hence the focus of several research groups. Methods including thin-layer chromatography (TLC), mass spectrometry or cytotoxicity assays are being explored. Other methods such as binding of mycolactone to RNA Aptamers as well as its detection in patient biopsy samples using LC-MS have been described.

Another method is the fluorescent thin layer chromatography (f-TLC) developed by late Professo Kishi Yoshito and coworkers based on the detection of mycolactone. The method derives its name from a chemistry-based technique that separates components of mixtures (thin layer chromatography) and fluorescence that occurs after the

coupling with 2-naphthylboronic acid (BA) (**fluorogenic chemosensor**). The method is simple to use, practical, relatively economical and very sensitive. It relies on the chemical derivatization of mycolactone (**shown below**) by complexing the 1,3-diol units (**blue**) in the structure with BA (**green**), which acts as a fluorogenic chemosensor, to form two cyclic boronates.

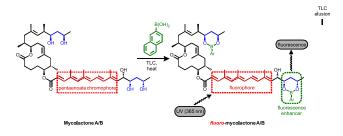


Illustration of fluorescent-TLC detection method showing the derivatization of mycolactone A/B with BA

Dr. Richard Amewu of the Department of Chemistry, is part of a research group evaluating the diagnostic performance and utility of the fluorescent thin layer chromatography (f-TLC) method for the diagnosis of BU disease on behalf of the World Health Organization (WHO), since 2015. Their evaluation covers four countries in Africa including Ghana, Togo, Benin and the Democratic Republic of Congo. They are also working with international partners towards transforming the method into a point-ofcare simple device tool that would enable diagnosis of the BU disease within the communities to replace the current practice of sending specimen of suspected samples to reference laboratories. The team is also seeking other ways of enhancing the fluorescence.

Innovate UG: Technology Initiatives Driving Entrepreneurship

The University of Ghana's Innovation Policy promotes the translation of inventions and discoveries into practical products, processes, and services useful for economic and social development of Ghana.

The establishment of technology and innovation initiatives at the University, is intended to provide avenues for young entrepreneurs to develop creative ideas into viable business ventures.

In this edition we feature technology and innovation platforms supporting youth entrepreneurship.

UG TechOnline

The "UG TechOnline" is an online technology portal which aims to impact society through innovation. The Portal allows users to stay abreast with innovations and inventions developed at the University of Ghana and get in touch with faculty to advance potential uptake and utilization. UGTechOnline also provides an opportunity for the University to mobilize resources to scale up technologies developed at the University to facilitate technology transfer and/or commercialization.

This innovative platform is an initiative of the Office of Research and Innovation Development (ORID) and is run by the Technology Transfer and Intellectual Property unit.

UGTechOnline is accessible via https://www.ug.edu.gh/ugtechonline/

UNIVERSITY OF GHANA BUSINESS SCHOOL NEST (UGBS Nest)

The University of Ghana Business School (UGBS), has established an innovation and incubation hub dubbed 'UGBS Nest'. The UGBS Nest is a technologically equipped space in which patrons have access to resources, and mentors, to develop innovation and technology-based entrepreneurship ideas of students. Since its establishment in July 2021, various enterprise teams have been enrolled in incubation programmes to foster creativity. Through engagement in online learning platforms and interactive sessions, participants acquire soft skills to improve and build innovative ideas.

THE KOFI ANNAN ENTERPRISE HUB FOR AGRICULTURAL INNOVATION (KAEHAI)

The Kofi Annan Enterprise Hub for Agricultural Innovation (KAEHAI), at the West Africa Center for Crop Improvement (WACCI) was established to create avenues for innovation in agriculture to make climate-friendly agriculture a cultivation method of choice. The hub promotes ecosystems for agribusiness incubation and hosts interactive platforms for training patrons of the agriculture value chain.

Entrepreneurship training for startups and policy dialogues are organized at KAEHAI in conjunction with institutions such as Massachusetts Institute of Technology (MIT) and the Erasmus Center for Entrepreneurship. The platform creates opportunities for participants to interact and develop innovative agribusiness models for food production.

STUDENT VENTURE SUPPORT TRAINING PROGRAM



















The Office of Research Innovation and Development (ORID) has spearheaded a student venture support training program in partnership with Impact Hub-Accra and Imperial College-London. The initiative is captioned 'Connecting Ghana Project' which brings together three leading Universities in Ghana, collaborating to foster a culture of entrepreneurship and nurture innovative ideas of students.

The program is part of the 'Innovation for African Universities" (IAU) initiative, funded by the British Council's - 'Going Global Partnerships' program.

Student-led teams from the three universities were trained and mentored to develop innovative ideas for commercialization. Training entailed a series of workshops and mentoring sessions, covering topics such as:

- Design Thinking & Rapid Prototyping
- Strategic Planning
- Business Fundamentals
- Fundraising Action Plan & Building

- Building Powerful Business
 Relationships
- Pitch DNA & Practice
- Lean Methodology
- Data and Metrics
- Growth and Hacking and
- Pitching and Storytelling

These sessions formed part of the project's capacity building strategy.

Networking events held by participating institutions i.e UG, UCC and KNUST, enabled teams to pitch ideas to be shortlisted. Fifteen teams of finalists; five from each university emerged for the final event dubbed 'DEMO DAY' where three top teams received awards based on;

Presentation skill, innovation, market potential, business model, environment and social impact, and execution plan and the team's 'ask'.

WINNING TEAMS

Position/ Institution	Venture	Commercial Sector	Product/Service
1 st KNUST	McHan Organics Members Hannah Appiah Nicholas Apenya Kofi Emmanuella Egyir	Health, Agric Engineering/ Extension Manufacturing	Processing of cocoa pods into cosmetic products and detergents e.g solid black soap, shower gel with mosquito repellant properties
2 nd KNUST	Smart Farm Members Funchious Paul Mensah Emmanuella Odoom Paa Kwasi Saka Dankyi Abubakar Fianu Ali	Food, Agric Engineering	A 'green' dryer to address the problem of sun drying and post-harvest losses. The technology is powered by solar energy and other renewable energy sources
3 rd UG	Eduvara Members Raymond Dodzi Helegah Priscilla Yamoah Micheal Korangteng Henritta Obeng Dinah Adjeiwah Asare Priscilla Dadzie	Digital Education	A school management suite, to address the inefficiency of administrative processes in education. With an offline-first approach, it tackles the challenge of limited internet connectivity in schools.









UTERINE CONTRACTION DETECTION SYSTEM USING ARTIFICIAL INTELLIGENCE TECHNIQUE

Abstract:

During the later stages of pregnancy, women go through labour to be able to give birth. One way of observing labour progress is through the monitoring of uterine activities. Uterine contractions become more frequent, last longer and more intense as labour progresses. Health personals find it difficult to monitor and track the progress of labour.

The "Uterine Contraction Detection System using Artificial Intelligence Technique" project seeks to provide an automated system that will monitor and classify the uterine contractions and notify the health personnel when there are some irregularities with limited human intervention. The proposed system developed provides a way to monitor uterine contraction during labour. The system records and computes the average duration, frequency, and amplitude of the uterine contractions. The recorded data is sent to the web server through a wireless communication. An artificial intelligent model

was added to help classify records into regular and irregular contractions.

A web-based application developed also provides a platform that allows users to input patient details, view classifier results and monitor the progress of labour. The developed system was tested and was able to determine the different parameters that are necessary to monitor the progress of labour.

The application is able to classify recorded uterine contraction results (average duration, frequency, and amplitude) and also determine whether contractions are regular or irregular. This project will also be useful for doctors, nurses, and other health personals in managing their patients. The system developed will provide enormous benefits to users in the monitoring of uterine contraction and the associated risk and complications during labour.

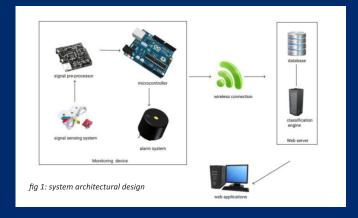




fig 2: system testing with potentiometer

Group Members: **Robert Kwame Yeboah** & **Nketia Isaac Cromwell**Supervisors: **Dr. Godfrey Mills** Co-Supervisor: **Prof Elsi<u>e Effah Kaufmann</u>**





DEVELOPMENT OF A MOBILE APPLICATION FOR THE DETECTION AND CATEGORIZATION OF ARRHYTHMIA USING ECG SIGNALS

Abstract:

Arrhythmia is a condition of the heart where the heart rate or rhythm of a patient is abnormal. During an arrhythmia, the heart can beat too fast, too slowly or erratically. An arrhythmia like Ventricular fibrillation, which is an erratic, disorganized firing of impulses from the ventricles is a leading cause of most sudden cardiac deaths. Early and timely detection of arrhythmic events may lead to avoidance of any catastrophe or loss of human life. Besides, if detected early, remedial action could be taken for treatment where necessary.

The "Development of a Mobile Application for the Detection and Categorizing of Arrhythmia using ECG Signals" project provides a mobile based solution for the

detection and categorization of arrhythmia. A modified Pan-Tompkins algorithm was developed for identification and extraction of P and T waves alongside the QRS complexes from the ECG signals. An AI technique based on the Random Forest algorithm was developed to classify 12 different arrhythmias. The classifier was trained with 1300 randomly generated samples. To test the performance of the arrhythmia detection system, different sets of data from the MIT-BIH arrhythmia database were used. For each dataset the following features: RR interval, QRS duration, PR interval, P wave duration, T wave duration, QT interval, Heart rate as well as the amplitudes of P, Q, R, S and T waves were extracted. Results show that the system was able to adequately categorize the selected conditions of arrhythmia with an accuracy of 100%.



fig1: implementation of ecg device with mobile application

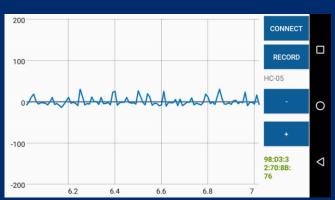


fig2: mobile application showing live ecg signal

Group Members: **Danielle Naa Djaa Mills** & **Israel Nanor**Supervisor: **Dr. Godfrey A. Mills** Co-Supervisor: **Prof Elsie Effah Kaufmann**



CARDIAC ARREST DETECTOR WITH REMOTE PATIENT MONITORING SYSTEM



Abstract:

Sudden cardiac death (SCD) is one of continuing challenges to the modern clinician. The statistic from the National Cardiothoracic Centre indicates that in the year 2015, 60% of deaths amongst adults in the country results from heart related disease and stroke. Most of these deaths could have been prevented if the victims had received immediate medical attention. The aim of the "Cardiac Arrest Detector With Remote Patient Monitoring System" is to develop a system that will monitor patients at risk of experiencing SCD and alert necessary emergency contacts should a person experience any such life-threatening event. The system consists of a wearable device that records patient pulse and blood oxygenation and transmits this information in real time to a mobile application for the patient, as well as a server to transmit patient data to and from mobile applications for a doctor or medical professional as well as paramedics.

The approach to SCD detection is to monitor the pulse and oxygenation levels of the band user using a pulse sensor and oximeter respectively and raise an alarm when these measurements go above or below a threshold specified by a doctor or medical professional. The mobile monitoring application as well as the web server system makes it possible to keep track of patients in real time, as well as notify emergency contacts whenever the need arises. This project is very important as its implementation into the medical system will reduce pressure on hospital resources as patients can be monitored from home. In addition, the provision of a map to the system makes it possible for a victim to be located quickly and given much needed urgent medical attention. The device is also useful for detecting other heart anomalies such as heart attacks and arrhythmias. It is also applicable in the early detection of certain respiratory diseases due to measurement of blood oxygen saturation. Extension of prediction algorithms to include artificial intelligence classifiers such as artificial neural

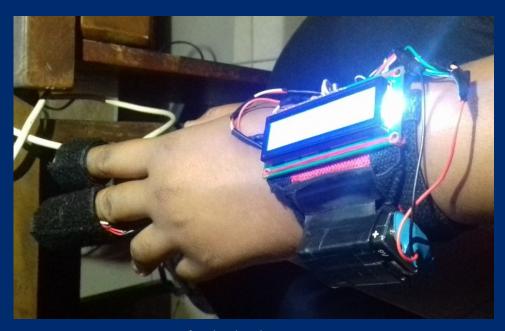


fig1: band implementation

Group Members: Adams Sammuella, Asomani-Adem Ama Opokua, Klufio Enoch & Asiedu Opare Kwame Supervisor: Dr. Percy Okae Prof Elsie Effah Kaufmann



SCHOOL OF NUCLEAR AND ALLIED SCIENCES SPEARHEADS "NYANSAPO" ARTIFICIAL INTELLIGENCE CHALLENGE FOR TERTIARY STUDENTS

Background: Since Alan Turing first introduced the brilliant vision of "thinking machines" in 1950, artificial intelligence (AI) research has been a breakthrough in many fields and generated an increasing body of articles. Efforts are being made to strengthen AI in Africa, which is essentially an overarching theme of this initiative. However, there is an immense challenge to AI adoption, particularly in Sub-Sahara African countries like Ghana due to lack of AI talent and skills, amona others. To drive growth and development of AI in core sectors such as health, agriculture, industry, astronomy, education, etc., the Al Challenge, being organized under the auspices of the NYANSAPO Project of the French Embassy in Ghana, seeks to bring together tertiary students within the premise of embarking on mini projects that provide solutions to local problems in Ghana.

Objectives: The "NYANSAPO" AI Challenge is aimed at promoting the use of artificial intelligence for emerging innovative research studies conducted in Ghana by making use of relevant AI tools. The project enhances foresight and awareness of AI among students and early-stage researchers and provide a basis for capacity building initiatives adapted to specific needs of students and researchers.

Participation: The Challenge is open to students from the tertiary academic institutions (Universities and Polytechnics) in Ghana. The participants can be in teams of not more than three members or individuals and will be

required to work on Al mini projects that have potential to solve key problems in Ghana. Applicants must first declare their interest in the challenge by completing an application form and submitting a concept note.

Selection Method: Candidates will be shortlisted based on the quality and relevance of project concept proposed. Shortlisted candidates will be given 3 months to develop their mini projects and submit same to the Coordinator of the AI Challenge. After evaluation of the received mini projects by team of experts, 1st, 2nd and 3rd Prize winners will be honoured during the "NYASAPO" AI Symposium to be organized in October 2023

Sponsorship: The AI Challenge is funded by the French Embassy in Ghana and is facilitated by the Ghana Atomic Energy Commission (GAEC), School of Nuclear and Allied Sciences (SNAS) of the University of Ghana, University of Paris Saclay, Institut de Chimie Physique (ICP) and the Agence Français de Développement (AFD).

F. Hasford^{1,2}, C. Nuviadenu^{1,2}, D. Adjei³, P. Addo⁴, T.A. Narh^{1,2}, E.K. Sosu^{1,2}, M. Pokoo-Aikins^{1,2}

¹School of Nuclear and Allied Sciences, University of Ghana ²Ghana Atomic Energy Commission ³University of Paris Saclay, France ⁴Agence Français de Développement, France

FUNDER	UG LEAD	ORIGINATING UNIT	PROJECT TITLE		BUDGET CATED TO UG
African Academy of Sciences (AAS)	Dr. Edem Mahu	Department of Marine and Fisheries Sciences	Oyster Shell Models for Hindcasting Holocene Environmental Conditions in Equatorial Atlantic Coastal Waters of Africa	EUR	497,855.00
African Academy of Sciences (AAS)	Dr. Lucas Amenga-Etego	West Africa Centre for Cell Biology of Infectious Pathogens (WACCBIP)	PAMGENE-Covid-19 – Dynamics of SAR-CoV-2 and Plasmodium species co-transmission and genetic variation across a gradient of malaria endemic areas in Africa	USD	20,000.00
Ashesi University	ORID	Office of Research, Innovation and Development (ORID)	Research Capacity Building and Collaboration	GHS	23,000.00
Bill and Melinda Gates Foundation	Prof. Justice Nonvignon	Department of Health Policy, Planning and Management	Cost-effectiveness of Covid-19 vaccination strategies in Ghana and Benin	USD	85,000.00
Bill and Melinda Gates Foundation	Prof. Yaw Asare Afrane	Department of Medical Microbiology	Malaria Modeling Field-Strengthening: WAMCAD	USD	3,000,000.00
Bill and Melinda Gates Foundation through Duke University	Prof. Justice Nonvignon	Department of Health Policy, Planning and Management	Developing the evidence base to support country transition planning	USD	30,993.00
Botnar Institute through WHO	Dr. Benedict Weobong	Department of Social and Behavioural Sciences	Y-Check: Evaluating the effects of adolescent health check- ups	USD	660,979.00
British Council	Dr. Kobby Mensah	Department of Marketing and Entrepreneurship	Innovation and Youth Entrepreneurship for Sustainable Tourism in Africa	GBP	599.96
British Society for Antimicrobial Chemotheraphy COVID-19 Grant Scheme	Dr. Lydia Mosi	West Africa Centre for Cell Biology of Infectious Pathogens (WACCBIP)	Field validation of a new high-sensitivity, low-cost SARS-CoV- 2 nucleic acid point-of-care test in Ghana	USD	50,020.00
Bundesministerium fűr Bildung und Forschung (BMBF) through ZALF	Dr. Dilys MacCarthy	Soil and Irrigation Research Centre (SIREC)	Co-Developing Innovations for Sustainable Land Management in West African Smallholder Farming Systems (COINS)	EUR	114,000.00
Challenge Co. Ltd, Japan	Dr. Thomas Armah	Department of Earth Science	Pilot Project on Early Warning Earthquake	USD	3,125.00
Chemonics International Inc.	Dr. Roger Atinga	Department of Public Administration and Health Services Management	Training of Trainers for Supply Chain Management: Northern and Eastern Regions	GHS	735,356.00
Danida Fellowship Centre (DFC) through Rosklide University	Prof. Martin Oteng-Ababio	Department of Geography and Resource Development	SWASH: Sustainable Wastewater Systems for Ghana	DKK	1,516,662.00
Danida Fellowship Centre / INNITI / Kvasir Technologies	Prof. Firibu Kwesi Saalia	Department of Food Process Engineering	Carbon Capture for Microbial Protein Synthesis in Burkina Faso (CAP-BFA)	DKK	360,840.00
Economic & Social Research Council (ESRC)	Prof. Kwasi Appeaning Addo	Institute for Environment and Sanitation Studies (IESS)	Building youth-led citizen science expertise in remote Ghanaian coastal communities – SargSNAP!	GBP	7,200.00

FUNDER	UG LEAD	ORIGINATING UNIT	PROJECT TITLE	BUDGET ALLOCATED TO UG
Education, Culture and Audiovisual Executive Agency (EACEA)	Prof. Gordon Awandare	West Africa Centre for Cell Biology of Infectious Pathogens (WACCBIP)	Mobility for Research and African Integration through Health Sciences, BRAINS	EUR 1,399,800.00
EU through ICLEI Africa	Prof. Amos Laar	Department of Population, Family and Reproductive Health	Transforming Africa's urban food environments through strengthening linkages between food systems stakeholders in cities across the continent and Europe	EUR 296,583.75
European Research Council Executive Agency (ERCEA)	Prof. Seth Adu Afarwuah	Department of Nutrition and Food Science	Leveraging Early Adolescence for Development: Longitudinal and Experimental Evidence from Ghana	EUR 81,725.00
European Union through Wageningen University	Dr. Fred Dzanku Mawunyo	Institute of Statistical, Social and Economic Research (ISSER)	Transformative Pathways for Synergizing Just Biodiversity and Climate Action (TRANSPATH)	EUR 200,000.00
Federal Ministry for Economic Cooperation and Development through Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).	Dr. Edem Mahu	Department of Marine and Fisheries Sciences	Mangroves as Nature-based Solutions to Coastal Hazards in Eastern Ghana (MANCOGA) Project	EUR 77,762.01
Food and Agriculture Organisation of the United Nations (FAO)	Dr. Gloria Ethel Otoo	Department of Nutrition and Food Science	Food and Nutrition Assessments for School Children in Ghana	GHS 750,000.00
Food and Agriculture Organization of the United Nations ("FAO")	Dr. Husein Mohammed	Department of Nutrition and Food Science	Development of supporting tools (food list coded with FoodEx2 and table of harmonized disaggregated mixed dishes/recipes) of 'Community assessment course of the Department of Nutrition and Food Science, University of Ghana, 2019' and 'Effect of lysine supplementation on health and morbidity in subjects belonging to poor peri-urban households in Accra, Ghana, 2008' survey datasets'	GHS 79,959.00
Ford Foundation	Prof. Abdul- Gafaru Abdulai	Department of Public Administration and Health Services Management	Political Economy of Oil Resource Distribution and Implications for Persistent Spatial Inequalities in Ghana	USD 170,000.00
Foreign, Commonwealth & Development Office & Wellcome Trust	Prof. Gordon Awandare	West Africa Centre for Cell Biology of Infectious Pathogens (WACCBIP)	Expansion and support of SARS-CoV-2 sequencing in West and Central Africa	GBP 519,840.00
Foreign, Commonwealth and Development Office (UK aid) through the University of Manchester	Prof. Abdul- Gafaru Abdulai	Department of Public Administration and Health Services Management	New African Cities Research Consortium Project	GBP 13,460.00
German Federal Ministry of Economic Cooperation and Development through Rheinische Friedrich-Wilhelms- Universität Bonn	Prof. Felix Ankomah Asante	Office of Research, Innovation and Development (ORID)	Program of Accompanying Research for Agricultural Innovation - PARI	EUR 30,002.93
Global Fund through the Ghana Health Service	Prof. Kwasi Torpey	Department of Population, Family and Reproductive Health	Integrated Bio-behavioral Surveillance Survey (IBBSS) amongst Men who have Sex with Men (MSM) in Ghana	USD 1,363,612.00
Google LLC	Dr. Jamal-Deen Abdulai	Department of Computer Science	Master Sponsored Research Agreement (the "MSRA")	USD 20,000.00
Google LLC	Dr. Isaac Wiafe Office of	Department of Computer Science	Waxal Project Partnership	USD 791,000.00
Google LLC	Research, Innovation and Development (ORID)	Office of Research, Innovation and Development (ORID)	Google Unrestricted Gift	USD 25,000.00
Google LLC	Prof. Chris Gordon	Institute for Environment and Sanitation Studies (IESS)	Climate information needs for Africa with a focus on Ghana	USD 20,000.00
HBNU Fogarty Global Health Consortium	Prof. Gordon Awandare	West Africa Centre for Cell Biology of Infectious Pathogens (WACCBIP)	Partnership for Global Health Research Training Program. (5D43TW010543-05)	USD 105,000.00
High Commission of Canada (Foreign Affairs, Trade and Development)	Dr. Abena Yeboah-Banin	Department of Communication Studies	Youth and Cybersecurity Safety	GHS 23,115.00

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FUNDER	UG LEAD	ORIGINATING UNIT	PROJECT TITLE	BUDGET ALLOCATED TO UG
IDRC	Prof. Amos Laar	Department of Population, Family and Reproductive Health	Developing Evidence and Action Toward a Double-Duty Food-Based Policy Bundle to Ensure Healthier Diets in Ghana	CAD 1,227,600.00
IDRC through IFPRI	Prof. Felix Ankomah Asante	Office of Research, Innovation and Development (ORID)	Strengthening national capacities and policies for food systems analysis and transformation in Ghana	USD 123,418.00
Innovate UK KTN	Prof. Ken Okwae Fening	Soil and Irrigation Research Centre (SIREC)	Testing Bi-Modal Trap Efficiency for Controlling the Fruit and Shoot Borer Complex Associated with African Eggplant (Solanum aethiopicum) in Ghana	GBP 10,350.00
International Atomic Energy Agency ("IAEA")	Dr. John Eleblu	West Africa Centre for Crop Improvement (WACCI)	Radiation-induced crop diversity and genetic associations for accelerating variety development - Mapping of Genetic Associations of Number of Pods Per Plant and Number of Seeds Per Pod in Cowpea	EUR 50,000.00
International Centre for Migration Policy Development (ICMPD)	Prof. Joseph Teye	Centre for Migration Studies	Action Against Trafficking in Persons into, from and within Ghana(AATIP)	EUR 98,830.23
International Development Association through the Public Sector Reform Secretariat: Office of the Senior Presidential Advisor	Prof. Justice Bawole	Department of Public Administration and Health Services Management	Consulting Service to Serve as an Independent Verification Agent	GHS 1,952,678.82
International Development Research Centre (IDRC)	Prof. Kwasi Appeaning Addo	Institute for Environment and Sanitation Studies (IESS)	Coastal vulnerability in theGhana coastlands to relative sealevel rise	EUR 2,250.00
International Development Research Centre (IDRC) through Data Science Africa (DSA) and Deep Learning Indaba (DLI)	Mr. Emmanuel Annor (MPhil) and Dr. Richard Minkah (Supervisor)	Department of Statistics and Actuarial Sciences	Revisiting the Application of Extreme Value Theory to the Management of a Hydroelectric Dam	USD 5,000.00
International Development Research Centre (IDRC)- Canada	Prof. Peter Quartey	Institute of Statistical, Social and Economic Research (ISSER)	Teacher Capacity Building for Play-based Early Learning in Ghana and Sierra Leone	CAD 426,566.00
International Development Research Centre (IDRC)- Canada	Dr. Edward Asiedu	Department of Finance	Nudging Small and Medium Sized Enterprises in Ghana to Adopt Digital Technologies: Experiments Promoting Inclusive Innovation	CAD 516,500.00
International Telecommunication Union, Geneva, Switzerland	Dr. Edward Asiedu	Department of Finance	Improving Resilience in Developing Countries: Digital Health Provision through Telemedicine Ecosystem against Pandemic, Epidemics and Natural Disasters in Sub-Saharan Africa	USD 4,200.00
Johns Hopkins University Applied Physics Laboratory LLC through Montana State University	Dr. Richard Dery Suu-lre	School of Veterinary Medicine	Zoonotic Contact Tracing: Cross-species : Contact Tracing for Pandemic Source Attribution	USD 53,030.00
KGL Foundation LBG	Prof. Eric Danquah	West Africa Centre for Crop Improvement (WACCI)	Incubator Programme for The Sustainable Development of Green Start-ups and Seed Businesses Towards Food, Nutrition and Economic Livelihood Security in Ghana	GHS 1,018,854.00
Mastercard Foundation	Dr. John Ganle	Department of Population, Family and Reproductive Health	Young Africa Works: Disability inclusion research partner	USD 171,796.00
MasterCard Foundation through Kosmos Innovation Centre Foundation LBG	Prof. Irene Egyir	Department of Agricultural Economics and Agribusiness	Implementation of the KIC AgriTech Challenge (Classic and Pro) and Incubation Modules	USD 100,000.00
Ministry of Foreign Affairs of Denmark (Danida Fellowship Centre) through Aarhus University	Dr. George Acheampong	Department of Marketing and Entrepreneurship	Port Effectiveness and Public Cooperation for Competitiveness II (PEPP II)	DKK 1,252,207.00
MMV Medicines for Malaria Venture ("MMV")	Dr. Richard Amewu	Department of Chemistry	Hit validation of whole cell P. falciparum asexual blood stage HTS actives	USD 20,000.00
National Geographic Society (NGS) through University of Massachusetts Amherst	Dr. Allison Felix Hughes	Department of Physics	Making case for reducing air and noise pollution in school environments in Accra, Ghana	USD 28,200.00



FUNDER	UG LEAD	ORIGINATING UNIT	PROJECT TITLE		UDGET ATED TO UG
National Institute of Mental Health	Prof. Gordon Awandare	West Africa Centre for Cell Biology of Infectious Pathogens (WACCBIP)	Public Understanding of Big data in Genomics Medicine in Africa (PUBGEM-Africa)	USD	60,048.00
National Institutes of Health	Dr. Yvonne Dei- Adomakoh	Department of Haematology	Development and evaluation of community-based approaches and donor care intervention models for improving availability and safety of blood for the management of severe anemia in Ghana	USD	636,103.00
National Institutes of Health (National Heart, Lung and Blood Institute)	Prof. Solomon Ofori-Acquah	Department of Medical Laboratory Sciences	Ghana-SPARCO: Ghana Sickle Pan-African Research Consortium	USD	120,290.00
National Institutes of Health (NIH)	Prof. Eric Sampane- Donkor	Department of Medical Microbiology	Invasive Pneumococcal Disease and Carriage among Children with Sickle Cell Disease in Ghana: A Post- vaccination Study	USD	134,924.00
National Institutes of Health (NIH)/National Institute of Mental Health (NIMH)	Prof. Angela Ofori- Atta	Department of Psychiatry	Combining mHealth and nurse-delivered care to improve the outcomes of people with serious mental illness in West Africa	USD	221,071.00
NIHR through King's College London of Strand	Dr. Benedict Weobong	Department of Social and Behavioural Sciences	NIHR Global Health Research Group on Interventions for Youth with Depression and Anxiety Disorders in African Countries	GBP	831,878.00
Oppenheimer Generations Foundation through its trustee EOSon NFO PTC Limited	Dr. Benedicta Yayra Fosu- Mensah	Institute for Environment and Sanitation Studies (IESS)	Microplastics and Plastic-Derived Chemical Contaminants in Africa: Implication on Human Health and the Loss of Aquatic Biodiversity	USD	6,931.19
PASET Regional Scholarship and Innovation Fund	Dr. Abigail Ampomah Adaku	Department of Agricultural Economics and Agribusiness	Innovating out of the urban street food safety challenges (Urban Safe)	USD	84,000.00
Research England through University of York	Dr. John Manyimadin Kusimi	Department of Geography and Resource Development	Using Photovoice in Artisanal and Small-Scale Goldmining Communities in Southern Ghana	GBP	4,000.00
Rideau Hall Foundation (RHF) through The Governors of the University of Calgary	Prof. Mavis Dako- Gyeke	Department of Social Work	Partnering for Innovation in Women-led Social Work and Social Science in West Africa	CAD	587,571.75
Swiss Innovation Agency (Innosuisse)	Dr. Joycelyn Quansah	Department of Nutrition and Food Science	Fruit to Bar – Innovative post-harvest processing of depulped cocoa beans and pulp thereof for single source chocolate	GHS	4,500.00
The Association of Commonwealth Universities	Mrs. Amma Appah	Office of Research, Innovation and Development (ORID)	Early Career Researcher Training Grants	GBP	1,000.00
The Association of Commonwealth Universities	Mr. Godfred Amoah	Central Administration	Human Resources in Higher Education Community Challenge Grants	GBP	10,000.00
The British Council	Prof. Felix Ankomah Asante	Office of Research, Innovation and Development (ORID)	Innovation for African Universities Project (Network partnership collaboration agreement)	GBP	52,473.00
The British Council	Prof. Felix Ankomah Asante	Office of Research, Innovation and Development (ORID)	Going Global Partnerships, Innovation for African Universities Project	GBP	38,000.00
The Carnegie Cooperation of New York through the University of Pretoria, South Africa	Dr. Ebenezer Amankwaa	Department of Geography Resource and Development	Analyzing Dynamic Adaptation Strategies of the urban poor to improve well-being (ADAPT)	USD	27,610.00
The European and Developing Countries Clinical Trials Partnership (EDCTP)	Dr. Lucas Amenga-Etego	West Africa Centre for Cell Biology of Infectious Pathogens (WACCBIP)	Plasmodium falciparum tolerance to antimalarial drugs in West Africa - EGSAT"	EUR	25,000.00
The National Geographic Society (the "Society")	Dr. Edem Mahu	Department of Marine and Fisheries Sciences	Oyster Restoration and Conservation for Ecosystem and Livelihood Protection in Anyanui.	USD	100,000.00
The Royal Society ("RS") through University of Surrey	Dr. Mary Anti Chama	Department of Chemistry	Phytochemical Investigation of Threatened Medicinal Plants of Ghana	GBP	7,000.00
The Society of Exploration Geophysicists, INC (Geoscientists without Borders®)	Dr. Elikplim Abla Dzikunoo	Department of Earth Science	Provision of Potable Water to Communities in Northeastern Ghana	USD	30,617.00



FUNDER	UG LEAD	ORIGINATING UNIT	PROJECT TITLE	BUDGET ALLOCATED TO UG
The Wellcome Trust, UK	Prof. Gordon Awandare	West Africa Centre for Cell Biology of Infectious Pathogens (WACCBIP)	Cellular Dissection of Plasmodium falciparum Erythrocyte Invasion	GBP 212,954.05
The World Academy of Sciences (UNESCO-TWAS)	Dr. Cornelia Appiah-Kwarteng	School of Veterinary Medicine	Molecular Comparison of Trichuris sp of Grasscutters, Livestock and Humans in Ghana	USD 49,720.00
UKRI / Economic & Social Research Council	Dr. Dora Neina	Department of Soil Science	GCRF: Social and Environmental Trade-offs African Agriculture (SENTINEL)	GBP 17,560.00
UNESCO - The World Academy of Sciences (TWAS)	Dr. Lydia Mosi	Department of Biochemistry, Cell and Molecular Biology	The microbiome of Buruli ulcers and its impact on intervention outcomes.	EUR 20,000.00
United Nations Industrial Development Organization (UNIDO)	Prof. Kwame Afreh-Nuamah	Forest and Horticultural Crop Research Centre (FOHCREC)	Promoting Public Health And Social Resilience against COVID- 19 by Strengthening the Domestic Supply Chain of Personal Protective Equipment Under a Circular Economy Approach	USD 40,000.00
USAID	Dr. Yvonne Loh	Department of Earth Science	Global Hunger and Food Security Research Strategy: Climate Resilience, Nutrition and Policy - Feed the Future Innovation Lab for Small Scale Irrigation	USD 52,825.00
Volkswagen Stiftung	Prof. Gordon Awandare	West Africa Centre for Crop Improvement (WACCI)	Establishment of open source RT-LAMP based SARS-CoV-2 diagnostics in Africa	EUR 15,300.00
Wellcome Trust	Dr. Caesar Atuire	Department of Philosophy and Classics	Moving beyond solidarity rhetoric in global health: Pluriversality and actionable tools	GBP 1,796,869.5
Wellcome Trust/Foreign, Commonwealth & Development Office	Prof. Gordon Awandare	West Africa Centre for Cell Biology of Infectious Pathogens (WACCBIP)	Public Engagement to strengthen COVID-19 genomics research in Africa	GBP 99,801.00
WHO -TDR	Prof. Phyllis Dako- Gyeke	Department of Population, Family and Reproductive Health	2nd phase of TDR Postgraduate Training Scheme with a focus on Implementation Research	USD 357,588.00
World Bank	Dr. Thomas Armah	Department of Earth Science	Partnership Agreement between Challenge Co. Ltd. and University of Ghana	USD 4,000.00
World Bank	Dr. Enerstina Dankyi	Centre for Social Policy Studies (CSPS)	Social Protection COVID-19 Responsive System Study	GHS 417,758.84
World Health Organization (WHO)	Prof. Samuel Agyei-Mensah	Department of Geography and Resource Development	Provision of Logistical and Organizational Support for BreatheLife/Urban Health Initiative Regional Workshop for African Cities in June 2022	USD 14,019.00
Worldwide Universities Network (WUN)	Prof. Kwasi Appeaning Addo	Institute for Environment and Sanitation Studies (IESS)	Building capacity to monitor and manage sargassum seaweed inundations in Western Africa (SARCAP)	GBP 3,500.00
Worldwide Universities Network through the University of Sheffield	Prof. Joseph Osafo	Department of Psychology	Getting Back in Touch: Emotional Pathways to a Post- Pandemic World	GBP 3,458.00
Worldwide Universities Network(WUN)	Prof. Elsie Effah Kaufmann	Department of Biomedical Engineering	The Design and Development of Appropriate MedTech products for In-Country Use: a Regional Comparison of West and East Africa	GBP 5,245.00





E APPOINTMENTS







The President of the Republic, His Excellency Nana Addo Dankwa Akufo-Addo has appointed **Prof. William Kwabena Ampofo**, former Head, Virology Department, Noguchi Memorial Institute for Medical Research, as the Chief Executive Officer of the newly established National Vaccine Institute (NVI). **Prof Gordon A. Awandare**, Pro-Vice-Chancellor, Academic and Student Affairs and Director of the West African Centre for Cell Biology of Infectious Pathogens (WACCBIP), and **Prof. Alex Dodoo**, former Director of the Centre for Tropical, Clinical Pharmacology & Therapeutics, University of Ghana Medical School, have also been appointed as board Members of the Institute to develop policy direction and implementation for vaccine production and manufacturing in Ghana.

The mandate of the NVI is to among other things coordinate and facilitate the capacity of DEKS Vaccines Ltd. and other domestic pharmaceutical companies to fill, finish and package mRNA COVID-19 and other vaccines, such as those against malaria and tuberculosis



Prof. Chris Gordon, Former Director of Institute for Environment and Sanitation Studies (IESS) has been elected member of the Multidisciplinary Expert Panel of the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

The Multidisciplinary Expert Panel is the high-level technical committee which provides oversight on IPBES, an international organisation committed to strengthening the role of science in public decision-making on biodiversity and ecosystem services.



Prof. Kofi Anyidoho, Professor of English, has been awarded an honorary doctorate degree, Doctor of the University (DUniv), at the University of Glasgow, Scotland in recognition of his work in Literature, the Arts and Humanities particularly in slavery and ancestral memory.



Prof. (Mrs.) Olivia Anku-Tsede, Legal Counsel of the University of Ghana has been appointed as a Justice of the Court of Appeal, Ghana.



Curatals & APPOINTMENTS



Prof. William Ampofo of the Noguchi Memorial Institute of Medical Research's Department of Virology has been recognised as on the 2022 MTN heroes of change (Health Sector) for his contribution to Ghana's fight against the COVID-19 pandemic.



Professor Akosua Adomako Ampofo of the Institute of African Studies has been named the 2023/2024 Wangari Maathai Visiting Professor at the University of Kassel, Germany under the Global Partnership Network (GPN), established in the context of global partnerships for sustainable development and dedicated to outstanding senior scientists who have achieved appropriate recognition in their fields. The Professorship is in honour of the prominent Kenyan activist, Wangari Maathai, and stands for her commitment to justice, environmental and human rights.



Prof Anna Lartey, Department of Nutrition and Food Science has received the 2022 International Union of Nutritional Sciences (IUNS) Lifetime Achievement Award her outstanding contributions to nutrition of regional or global significance working in a developing country. The IUNS is a global body of nutritionists convened under a single platform to discuss and find science-based responses for global problems of nutrition and human wellbeing.



Prof. Ernest Aryeetey, former Vice-Chancellor has received an honorary doctorate degree, Doctor of Commerce (DCom), honoris causa from Stellenbosch University, South Africa. The award is in recognition for his discerning and innovative leadership in the higher education sector in Africa, commitment to creating platforms to build research and innovation capacity on the continent, and for sharing his expertise through his scholarly contributions.



Curards & APPOINTMENTS



Dr. Irene Appearing Addo, Institute of African Studies has won the 2022 Urban Studies Foundation (USF) International Fellowship. The Urban Studies Foundation is a Scottish charitable organisation whose aim and objective are to advance academic research and education in the field of urban studies.



- * **Prof. Eric Danquah**, Director, West Africa Centre for Crop Improvement has been adjudged the 2022 Africa Food Prize Laureate for his achievements in training African Agricultural Scientists for Africa. The Prize is a preeminent award recognizing an outstanding individual or institution that is leading the effort to change the reality of farming in Africa by taking bold initiatives and technical innovations that can be replicated across the continent to create a new era of food security and economic opportunity for all Africans.
- * **Prof. Eric Danquah,** Director, West Africa Centre for Crop Improvement has been recognised by Reputation Poll International in their 2023 list of 100 most reputable Africans.
- * Prof. Danquah has been appointed as Adjunct Professor at the Cornell University, USA.
- * **Prof. Danquah** has been ranked as number 1 on the Whova leaderboard at the 7th ACE Impact Regional Workshop.



Dr. Edem Mahu, Department of Marine and Fisheries Sciences is the recipient of the 2022 American Geophysical Union (AGU) Africa Award for Research Excellence in Ocean Sciences. The award is presented to an early career African scientist in recognition of excellent research on Earth or Ocean Sciences, outstanding service, outreach to society, acting as the main driver of the science when working in collaborative teams and mentoring student scientists.



Prof. Eric Sampane-Donkor, Head, Department of Medical Microbiology, University of Ghana Medical School has received the Fellow of the Royal College of Pathologists, UK (FRCPath) award; the highest award of the Royal College, in recognition of his research and scholarly works in the field of Medical Microbiology. The Royal College of Pathologists is the UK's recognised professional body for postgraduate medical training in the pathological sciences such as Medical Microbiology, Histopathology, Haematology, and Immunology.



Cwards & APPOINTMENTS



Professor Dzodzi Tsikata, former Director, Institute of African Studies, has been appointed a Research Professor of Development Studies at the Department of Development Studies of the School of Oriental and African Studies (SOAS), University of London.

The establishment of the distinguished research professorships by the SOAS is aimed at addressing current global challenges as outlined by the Sustainable Development Goals (SDGs).

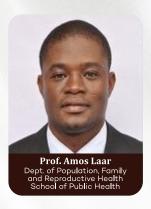


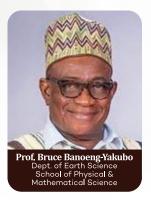
Mrs. Theodosia Adanu, acting University Librarian, has emerged as the Grand Prize Winner of the 2022 Osmosis Raise the Line Faculty Awards (Librarian Category), in recognition of her contribution to training the next generation of healthcare professionals, by championing the use of evidence-based digital tools.

UG FACULTY INDUCTED INTO GHANA ACADEMY OF ARTS AND SCIENCES



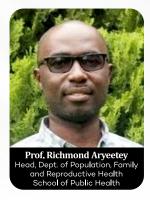














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