

**Prof. Erick Okuto, PhD**

School of Biological, Physical, Mathematics and Actuarial Sciences
Jaramogi Oginga Odinga University of Science and Technology
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PERSONAL STATEMENT

I am a knowledgeable and experienced academic and research scientist with interest to impact students and improve the livelihood and standard of living of neglected groups in marginal environments. My hands-on experiences and challenges which started at a young age strongly influenced my academic and research path.

WORK EXPERIENCE

July 2023 – to date

Associate Professor of Biostatistics

Erick Okuto is an Associate Professor of Biostatistics at the Department of Applied Statistics and Actuarial Science with a focus on applied data analysis and statistical modeling in environmental epidemiology. Erick's research mainly focuses on the development and application of statistical computing approaches and efficient statistical methods for big data analytics ecosystems. Prof. Okuto works on the routine use of District Health Information Software 2 (DHIS2) data for health system management, cost-effectiveness, and the associated effects of climate change and variabilities on the occurrence and distribution of diseases and associated risks.

Responsibilities

- Initiating and promoting resource mobilization efforts in the University.
- Promoting capacity strengthening in Applied Data Analysis and Statistical Modeling
- Spearheading response to calls for proposals in computational epidemiology, climate modeling, data analytic systems, robust electronic data collection ecosystems, and modeling issues in agriculture including crop phenology among other related research thematic areas.
- Fostering academic and research training and mentorship of Junior Faculty and Postgraduate students in the University.

- Facilitating effective teaching and learning of undergraduate students in Statistics and Actuarial Science.
- Integrating routine use of DHIS2 for decision-making to improve health outcomes through:
 - ✓ Designing studies that use DHIS2 data.
 - ✓ Analyzing DHIS2 data to identify trends and patterns.
 - ✓ Developing new methods for analyzing DHIS2 data.
 - ✓ Capacity building of junior faculty, health researchers, and postgraduate students on how to use DHIS2 data.
 - ✓ Develop manuscripts and policy briefs based on outcomes from the use of DHIS2 data.
- Developing academic programmes that meet both university, departmental and international standards in statistics and related subjects.
- Publish articles in peer review journals, attend conferences, deliver presentations, and network with other researchers and scholars in the field.

Jan 2023 – Present **Director**

Directorate of TVET Centre, Jaramogi Oginga Odinga University of Science and Technology, Bondo, Kenya

Responsibilities

- Ensuring proper infrastructure in place for effective implementation of TVET programmes in the University.
- Coordinating, developing, reviewing and implementing TVET policies, rules and regulations.
- Monitoring and implementing the curricular, co-curricular activities, programmes and projects.
- Preparing and implementing the departmental annual work plans and budgetary requirements.
- Preparing TVET strategies and give technical advice and guidance to personnel in lower cadre.
- Implementing the TVET staff training and appraisals.
- Promoting awareness on TVET needs and demands to local communities and parents.
- Preparing and submitting quarterly and annual reports.
- Advising and making recommendations on all matters related to training in TVET institutions areas of jurisdiction.
- Any other duties as the job may demand.

Jan 2022 – Jan 2023 **Ag. Director TVET**

Directorate of TVET Centre, Division of Academic Affairs, Jaramogi Oginga Odinga University of Science & Technology, Bondo, Kenya

Responsibilities

- Ensuring proper infrastructure in place for effective implementation of TVET programmes in the University.
- Coordinating, developing, reviewing and implementing TVET policies, rules and regulations.
- Monitoring and implementing the curricular, co-curricular activities, programmes and projects.
- Preparing and implementing the departmental annual work plans and budgetary requirements.
- Preparing TVET strategies and give technical advice and guidance to personnel in lower cadre.
- Implementing the TVET staff training and appraisals.
- Promoting awareness on TVET needs and demands to local communities and parents.
- Preparing and submitting quarterly and annual reports.
- Advising and making recommendations on all matters related to training in TVET institutions areas of jurisdiction.
- Any other duties as the job may demand.

Achievements

- The founder of JOOUST Directorate of TVET Centre
- Accreditation of JOOUST Directorate of TVET Centre by the TVET Authority
- Accreditation of 25 diploma programmes distributed across 8 Schools in the University
- Placement of 574 diploma students by Kenya Universities and Colleges Central Placement Service (KUCCPS)
- Admission of 324 diploma students in the University across the 8 Schools
- Mainstreamed TVET programmes within the University structure
- Well-coordinated TVET research through response to calls for proposals.
- Adaptation of the TVET-CDACC programmes for the University
- Adaptation of the University Senate approved diplomas and certificate programmes to fit within acceptable TVET structure in readiness for accreditation by TVET Authority

Mar 2020 – Jan 2023 Associate Director

Directorate of Resource Mobilization, Division of Research, Innovation and Outreach, Jaramogi Oginga Odinga University of Science and Technology

Responsibilities

- Developing concrete activities and initiatives to achieve strategic goals as well as indicators to monitor the implementation of the Strategy.
- Exploring new and innovative financial mechanisms at all levels with a view to increasing funding to support the objectives of the university
- Building capacity for resource mobilization and utilization and promote cooperation
- Promoting and nurturing new initiatives.
- Monitoring and evaluating the general performance of the Directorate.
- Following up on accreditation of Senate approved TVET-CDACC programmes by TVET Authority.
- Ensuring fully functional Centre for Data Management and Analytic Systems.

Achievements

- The founder of JOOUST Directorate of Resource Mobilization
- Coordinated grant proposal writing that realized up to 12 major research projects funded from both external and internal sources with a total budget of US \$1,593,080.71 in the University between 2019 and 2022.
- The External sources of funding obtained in the University include: the World Bank; Danish International Development Agency; Center for Disease Control and Prevention; World Health Organization; Canadian International Centre for Research and Development; German Government; Swedish International Development Agency; Swedish International Centre for Local Democracy; USAID-SERVIR; Bill and Melinda Gates Foundation; Natural Environment Research Council; Economic and Social Research Council; the Flemish Inter-universities Council – University Development Cooperation (VLIR-UOS); Capacity building grant under the European & Developing Countries Clinical Trials Partnership (EDCTP); and the Department for International Development.
- The local sources of funding include: National Commission for Science, Technology and Innovation; Kenya Agricultural Productivity and Agro-Business Project-Competitive Grants System and the National Council for Persons with Disabilities.
- Spearheaded accreditation of JOOUST TVET as part of our strategic plan 2022-2026 to offer most desired relevant Competency-based training to the students for skills and job creation.

- Sustainable revenue flow of at least KES 10 million per semester through the TVET system in the University.
- Spearheaded development and signing of numerous MOUs between the University and research partners including: International Livestock Research Institute (ILRI); Kenya Forest Research Institute (KEFRI); Siaya County, Department of Public Health; Bondo Technical Training Institute (BTTI); Mawego Technical Training Institute (MTTI); Siaya Institute of Technology (SIT); World Agroforestry Centre (ICRAF) among others

May 2020 – March 2023 **Postgraduate Coordinator**

School of Biological, Physical, Mathematics & Actuarial Sciences, Jaramogi Oginga Odinga University of Science & Technology, Bondo, Kenya

Responsibilities

- Coordination of school monthly seminars and postgraduate student progress presentations.
- Invitation of renown local and international scientists on various and specific themes from time to time to make presentations.
- Spearheads, development of faculty/student's vision beyond their own field of research.
- Creation of moment of exchange of ideas, information and debate around a defined research themes in the school.
- Creation of interactive environment between students and researchers

April 2019 – July 2023 **Senior Lecturer**

School of Biological, Physical, Mathematics & Actuarial Sciences, Jaramogi Oginga Odinga University of Science & Technology, Bondo, Kenya

Responsibilities

- Lecture statistics courses to diploma, undergraduate and postgraduate students.
- Student mentorship
- Supervision of postgraduate students
- Examining postgraduate research theses and projects
- Attending and speaking at research conferences and seminars
- Writing research proposals
- Participate in consultancies and bids for the University.
- Initiate and promotes resource mobilization strategies in the University

Achievements

- Streamlined sustainable School Postgraduate progress and monthly seminars
- Spearheaded strengthening of faculty and postgraduate students in response to calls for proposal, expression of interest and proposal writing.
- Spearheaded the development of three undergraduate Applied Statistics programmes and two corresponding postgraduate programmes and extended support to sister schools and departments.
- Mainstreamed TVET programmes within the University structure
- Spearheaded accreditation of 25 diploma programmes distributed across 8 Schools in the University
- Supervised to graduation of at least 5 PhDs and 6 Master students.
- Spearheaded the development of 20 full grant proposals for funding by various funding agencies.
- Succeeded in attracting funding for 5 different projects from the expression of interest in the concepts and proposals developed.
- Developed Big Data Analytics Systems powered by FormShare and CKAN for data sharing and electronic data ecosystems.
- Participated in at least 6 conferences and 4 workshop seminars.
- Published 16 papers in peer review journals
- Participated in 4 different community service responsibilities, including 3 Board of Management (BOM) memberships in schools and Patron to community welfare group “Wahambla Manyieny Foundation” for development.
- Spearheaded fully signed 5 MOUs with different institutions to foster collaboration and resource mobilization efforts in the University including Bondo TTI; Mawego TTI; Siaya Institute of Technology (SIT); International Livestock Research Institute (ILRI); Siaya County, Department of Public Health; Kenya Medical Research Institute (KEMRI); and Kenya Forestry Research Institute (KEFRI).
- An Adjunct Fellow at both Amref International University and the Catholic University of Eastern Africa.
- Facilitated undergraduate and postgraduate teaching and learning in at least four course units per semester.

May 2016 – May 2019 **Lecturer**

School of Mathematics & Actuarial Science, Jaramogi Oginga Odinga University of Science & Technology, Bondo, Kenya

Responsibilities

- Lecture planning, preparation and research, teaching Biostatistics (advance Biostatistics) and Epidemiology (advance epidemiology) courses
- Mentorship
- writing research proposals, papers and other publications
- Supervising PhD and MSc students
- Attending and speaking at conferences and seminars
- Checking and assessing students' work

September 2016 - 2019 **Adjunct Lecturer, CUEA**

Department of Mathematics, Catholic university of Eastern Africa, Kenya

Responsibilities

- Lecturing statistics courses to postgraduate students and reviewing biostatistics and epidemiology programs

March 2016 – May 2016 **Tutorial Fellow**

School of Mathematics & Actuarial Science, Jaramogi Oginga Odinga University of Science & Technology, Bondo, Kenya

Responsibilities

- Lecture planning, preparation and research, teaching Biostatistics (advance Biostatistics) and Epidemiology (advance epidemiology) courses
- Mentorship
- writing research proposals, papers and other publications
- Supervising PhD and M.Sc students
- Attending and speaking at conferences and seminars
- Checking and assessing students' work

Sep 2014 – Mar 2016

Part-time teaching Assistant - JOOUST

School of Mathematics & Actuarial Science, Jaramogi Oginga Odinga University of Science & Technology, Bondo, Kenya

Responsibilities

- Lecture planning, preparation and research, teaching

- Teaching statistical computing I, Statistical computing II, and Statistical Inference units
- Student mentorship
- Checking and assessing students' work

Jan 2014 – Apr 2016 [Research Fellow](#)

World Agroforestry Centre, The International Council for Research in Agroforestry (ICRAF), Kenya

[Responsibilities](#)

- Reported to Climate change Scientist
- Key deliverables involved 3 research articles
- Global assessment of vegetation index and phenology Lab (VIP) and Global inventory modelling and mapping studies (GIMMS) version 3 product; Developing Bayesian reconstruction procedure to Gap-fill vegetation index records; developing a Bayesian Gap-filling and downscaling procedure; and evaluating crop phenology vis-a-vis crop productivity

Aug 2012 – Jan 2014 [R-Programmer](#)

World Agroforestry Centre, The International Council for Research in Agroforestry (ICRAF), Kenya

[Responsibilities](#)

- Tasked with the management and analysis of the unit's data to achieve optimal efficiency, and maintain the quality and integrity of the data systems using R software for programming and statistical data analysis

EDUCATION

2013 – 2016

[Doctor of Philosophy in Applied Statistics \(Biostatistics\)](#)

Jaramogi Oginga Odinga University of Science & Technology, Bondo, Kenya

[Thesis title:](#) Reconstruction of enhanced vegetation index 2 record - An application of weak solution to stochastic partial differential equations approach

2011 – 2013

[Master of Science in Biometry \(Biostatistics\)](#)

University of Nairobi, Nairobi, Kenya

[Thesis title:](#) Gap filling weather station precipitation with Bayesian space-time approach with weather station datasets.

- 2007 – 2011 [BSc Statistics](#)
University of Nairobi, Nairobi, Kenya
[Thesis title](#): Determinants of under-five mortalities with 2008/2009 Kenya Demographic and Health Surveys (KDHS)
- 2001 – 2004 [Mirogi Boys' High School](#)
O level Education qualification

OTHER RELEVANT TRAINING

- [May 2023 – Jul 2023](#) Certificate in Teaching for Climate Action (TCA) at the Common Wealth of Learning
The course aimed to develop the skills, attitudes and values that teachers at all levels need in order to create a climate change consciousness among learners and their communities. The course explored a variety of pedagogies (teaching methods) that may be applied by teachers to deliver climate change education to learners in all subject areas. This, in turn, is expected to build the global capacity required for mitigation, adaptation and resilience to climate change impact.
- Participants in the course appreciated what climate change means and developed a general understanding of the science, impact, adaptation and mitigation strategies for climate change. They also got the opportunity to explore the pedagogies that can be applied to teach three key areas of climate change education:
- ✓ Science of climate change and its impact
 - ✓ Adaptation, mitigation and resilience to climate change
 - ✓ Gender, youth and community empowerment for climate action
- [July 2012 – Feb 2013](#) Certificate in Epidemiology and Biostatistics at School of Public Health, HarvardX University, United States of America
Quantitative Methods in Clinical and Public Health Research is the online adaptation of material from the Harvard T.H. Chan School of Public Health's classes in epidemiology and biostatistics. Principled investigations to monitor and thus improve the health of individuals are firmly based on a sound understanding of modern quantitative methods. This involves the ability to discover patterns and extract knowledge from health data on a sample of individuals and then to infer, with measured uncertainty, the unobserved population characteristics. The course intended to address this need by covering the principles of biostatistics and epidemiology used for public health and clinical research. These include:
- ✓ Outcomes measurement,

- ✓ Measures of associations between outcomes and their determinants,
- ✓ Study design options,
- ✓ Bias and confounding,
- ✓ Probability and diagnostic tests,
- ✓ Confidence intervals and hypothesis testing,
- ✓ Power and sample size determinations,
- ✓ Life tables and survival methods,
- ✓ Regression methods (both, linear and logistic), and
- ✓ Sample survey techniques.

Students analyzed sample data sets to acquire knowledge of appropriate computer software R and STATA. By the end of the course the successful students attained a sound understanding of these methods and a solid foundation for further study.

Dec 2012 – Sep 2013 Certificate in Human Health and Global Environmental Change, HarvardX University, United States of America

The course was anchored on the emergence that human activity has changed the atmosphere as well as the abundance and variety of life on a global scale. Evidence is mounting that these changes may already be having serious effects on human health. This course began with a consideration of climate change and biodiversity as two primary examples of global environmental change and examined what they entail for human health. In the final section of the course, we delved into some of the most promising avenues for addressing the causes of global environmental change and, in doing so, how we may ensure the healthiest possible present and future for all people. The course consisted of three major sections:

- ✓ The first two sections examined the scientific evidence related to climate change and its present and predicted impact on human health.
- ✓ The second section looked in particular at biodiversity, the impact of climate change on biodiversity, and the links between biodiversity and human health.
- ✓ The final section of the course was a unit focused on strategies for ameliorating climate change.
- ✓ After a framing of this section with videos from the course faculty, the courseware consisted of a series of guest lectures from experts in climate mitigation strategies ranging from sustainable tourism to the basics of biofuels.

In the final section of the course, students participated in solution discussion groups that encouraged students to work collaboratively to research sustainable enterprises.

Jan 2010 – Dec 2012 Diploma in Project Planning and Management
Kenya Institute of Social Work and Community Development, Kenya

CONFERENCES AND SEMINARS

- 15/05/2023-19/05/2023 Jaramogi Oginga Odinga University of Science and Technology: "Capacity strengthening workshop on effective postgraduate supervision supported by Jaramogi Oginga Odinga University of Science and Technology (JOOUST), African Population and Health Research Centre (APHRC), Lund University, Amref International University, and EDCTP"
- 14/11/2022-18/11/2022 Amref International University:
" Capacity strengthening workshop on effective postgraduate supervision supported by Jaramogi Oginga Odinga University of Science and Technology (JOOUST), African Population and Health Research Centre (APHRC), Lund University, Amref International University, and EDCTP".
- 27/04/2022-29/04/2022 East Africa Regional TVET Conference: Arusha international conference center, Tanzania International Conference on the theme: " self-employment, income, and quality jobs", The Association of Technical Universities and Polytechnics in Africa (ATUPA)
- 28/06/2021-02/07/2022 Strathmore University: International Conference on the theme: Advancing Research and Education in Mathematical Sciences in the Big Data era, Institute of Mathematical Sciences
- 06/10/2022-09/10/2022 TVET Recognition and Equation
By TVET Authority
- 04/08/2022-06/08/2022 TVET Standards and Guidelines
By TVET Authority
- 06/09/2021-09/09/2021 Sub-Saharan Africa Network (SUSAN): *Biometrics in the era of Big Data for Health and Food Security*. The Sub-Saharan Africa Network (SUSAN) of the International Biometrics Society is a network of national biometric groups of Sub-Saharan Africa countries that promotes the advancement of life sciences through the development, application, and dissemination of effective mathematical and statistical methods. The conference targeted

statistical applications in agriculture, medical and health research, infectious diseases, environment and ecology, climate, and other applied sciences such as statistical genetics and bioinformatics.

- 08/04/2019-11/04/2019 South-Africa Centre for Epidemiological Modelling and Analysis: The workshop will explore the uses of mathematical models in describing past and future disease transmission, and how these models can be applied in evaluating the effectiveness of disease control interventions and comparing policy options to reduce disease burden. Venue: Institute of Tropical & Infectious Diseases (UNITID), University of Nairobi.
- 07/03/2018-10/03/2018 Open Data Kit (ODK) by VLIR-OUS a project based at the University of Nairobi
- 15/01/2018-19/01/2018 Advanced Survival Data Analysis by VLIR-OUS a project based at the University of Nairobi
- 03/08/2015-07/08/2015 Statistical modelling and Data Science at the Strathmore 3rd International Conference
- 02/10/2013-05/10/2013 Spatial and Spatiotemporal Modelling with INLA: Training on spatial and spatiotemporal modeling with R-INLA facilitated by Prof. Janine Baerbel Illian, *University of St. Andrew, UK.* by the Program developers at the KEMRI-Welcome Trust program
- 12/08/2013-16/08/2013 R for Climate Change Studies at the World Agroforestry Centre

PERSONAL SKILLS

Mother tongue Luo

Other languages

English

Kiswahili

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C2	C2	C2	C2	C2
C2	C2	C2	C2	C2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user

Common European Framework of Reference for Languages

- Communication skills
- Excellent verbal and written communication skills gained through experiences with various research teams
 - Experienced at giving scientific presentations to large audiences
 - Excellent intercultural skills gained through experiences with people of diverse cultural backgrounds

- Organizational/ managerial skills**
- Excellent organizational and prioritization skills
 - Excellent leadership skills gained through experiences in different national and international institutions

- Job-related skills**
- Expert in data management and Analytics, Project reporting and consultancy management
 - Offering a wide range of consultancy services both locally and internationally
 - Research and grant proposal writing
 - Review technical and scientific writings
 - Outreach services to enhance and support development projects

Digital skills SELF-ASSESSMENT

Information processing	Communication	Content creation	Safety	Problem solving
Proficient	Proficient	Proficient	Proficient	Independent

Levels: Basic user - Independent user - Proficient user

Digital competences - Self-assessment grid

- Job-related computer skills**
- ODK expert powered by FormShare and CKAN
 - Technical expert in R, Python and GIS programming languages

ADDITIONAL INFORMATION

Publications

- MA Odhiambo, C Olweny, **E Okuto** (2022). Habitat preference and distribution of crickets (Orthoptera; Gryllidae) in Western Kenya. *J. Biol., Agric. Healthc.* 12(6). doi:10.7176/JBAH/126-04.
- **Erick Okuto**, Stephen G. Agong, Richard O. Magwanga, Julius O. Manyala, George Ayodo, Emily Ondondo, Judith Owaa, John Agumba, Desalegn Y. Ayal, Peter Bulli (2023). A Roadmap for Strengthening the Capacities of Science Granting Councils in Sub-Saharan Africa to Support Research and Evidence-based Policies. *Science and Public Policy*
- MA Odhiambo, CO Ochia, **EO Okuto** (2022). Effects of temperature on the development and survival of cricket species; *Acheta domesticus* and *Gryllus bimaculatus* (Orthoptera: Gryllidae). *East Afri. J. Agric. Biotechnol.* 5(1). doi:10.37284/eajab.5.1.834.
- M Ojala, R Magwanga, **E Okuto**, B Muok, J Kipyegon (2022) ecological diversity and contribution of edible insects to household food security. *Int. J. Res. Agric. Food Sci.* ISSN: 2208-2719. doi:10.53555/gafs.v8i2.1930.
- J Liu, RO Magwanga, Y Xu, T Wei, JN Kirungu, J Zheng, Y Hou, Y Wang, SG Agong, **E Okuto**, K Wang (2021) functional characterization

of cotton C-repeat binding factor genes reveal their potential role in cold stress tolerance. *Front. Plant Sci.* 12:766130.

- CA Ng'ong'a, CO Gor, **EOA Okuto**, KO Ouko (2021) Economic efficiency of cricket production reared under improvised cage system for improved food production. *Afri. J. Agric. Res.* 17(11):1453-1462.
- M Orinda, **E Okuto**, M Abwao (2021) Cage fish culture in the Lake Victoria region: Adoption determinants, challenges and opportunities. *Int. J. Fish. Aquac.* ISSN: 2006-9839. 13(2):45-55. doi:10.5897/IJFA2020.0798
- J Ongoma, AD Anekeya, **EO Okuto** (2021) Optimal allocation in small area mean estimation using stratified sampling in the presence of non-response. *Int. Journal of Stat. Distrib. Appl.* ISSN: 2472-3487 (Print); ISSN: 2472-3509 (Online), 7(1):13-24. doi:10.11648/j.ijds.20210701.13
- F Oluoch, G Ayodo, F Owino, **E Okuto** (2020) The Cost-implications of reaching universal coverage of maternity health services in Siaya County, Western Kenya. *Public Health Res.* p-ISSN:21677263 e-ISSN: 2167-7247;10(1): 1-11. doi:10.5923/j.phr.20201001.01.
- F Oluoch, G Ayodo, F Owino, **E Okuto** (2020) Modelling the impact of traveling time on the utilization of maternity services using routine health facility data in Siaya County, Western Kenya. *Am. J. Geogr. Inf. Syst.* p-ISSN: 2167-7263 e-ISSN: 2167-7247; 9(1):1-12, 2020. doi:10.5923/j.ajgis.20200901.01.
- F Oluoch, G Ayodo, F Owino, **E Okuto** (2020) Computing the geographic extent of maternity health services to predict the utilization of skilled delivery in Siaya County, Western Kenya., *Eur. Sci. J.* 16(3). ISSN:1857-7881 (Print) e-ISSN:1857-7431. doi:10.19044/esj.2020.v16n3p488.
- CA Ngonga, CO Gor, **EO Okuto**, MA Ayieko (2020) Growth performance of *Acheta domesticus* and *Gryllus bimaculatus* production reared under improvised cage system for improvised cage systems and food security. *J. Insects Food Feed* 7(3):301-310. doi:10.13140/RG.2.2.28232.24328.
- N Adera, **E Okuto**, M Ogayo, G Ayodo (2018) Modelling of in-patient bed capacity in a Public Referral Hospital in Western Kenya: A Case Study of Jaramogi Oginga Odinga Teaching and Referral Hospital, 2018. *Int. J. Math. Comput. Sci.* 2(3):2933. doi:http://www.aiscience.org/journal/ijmcs.
- SO Ojunga, JO Nyakinda, **E Okuto**, JA Mullah (2020) Extensions of Lefkovich matrix for modeling invasive *Cestrum aurantiacum* population dynamics. *Mathematical Theory and Modeling.* ISSN:2224-5804 (Paper) ISSN:2225-0522 (Online).10(7).

- SO Ojung'a, JO Nyakinda, **E Okuto**, JA Mullah (2019) Invasive Species Population Status Modeling Using Stage Based Matrix: Mount Elgon Ecosystem. *Math. Theory Model.* ISSN 2224-5804 (Paper) ISSN 2225-0522 (Online) 9(2). doi:10.7176/MTM.
- SO Ojung'a, JO Nyakinda, **E Okuto**, JA Mullah (2020) Sensitivity analyses of population projection matrix of *Cestrum aurantiacum*. *Int. J. Stat. Appl. Math.* ISSN:2456-1452, 5(6):43-47. doi:10.22271/math.2020.v5.i6a.612.
- M Marshall, **E Okuto**, Y Kang, E Opiyo, M Ahmed (2016) Global assessment of Vegetation Index and Phenology Lab (VIP) and Global Inventory Modeling and Mapping Studies (GIMMS) version 3 products. *Biogeosciences*. 12:9081–9120. doi:10.5194/bg-12-9081-2016
- J Ondulo, **E Okuto**, M Muga, D Omondi, C Obonyo (2017) Recurrent malaria in Kenya and equality of survival distribution functions. *J. Math.* 4(4). ISSN:2349-5375.
- **E Okuto**, B Omolo, O Ongati (2018) Reconstructing global earth observation-based vegetation index records with stochastic partial differential equations approach. *Int. J. Stat. Appl. Math.* 3(4):109-120.
- **E Okuto**, O Ongati, B Omolo (2018) Reconstructing earth observation vegetation index records with a Bayesian spatiotemporal dynamic model. *Int. J. Stat. Appl. Math.* 3(4):74-84.
- **E Okuto** (2018) Binomial mixture based on generalized four parameter beta distribution as prior. *Int. J. Stat. Appl. Math.* 3(4):65-73.
- J Ondulo, **E Okuto**, M Muga, D Omondi (2017) Recurrent malaria In Kenya: Survival distribution an equality of survival distribution OC. *J. Math.* 4:2349-5375.
- S Magundo, G Muhua, **E Okuto** (2018). Multiple Discriminant analysis as applied to language distinction. *Bull. Math. Stat. Res.* 6(3).
- **E Okuto** (2018) Application of three parameters generalized Beta I distribution in Binomial mixture. *Bull. Math. Stat. Res.* 6(3)
- **E Okuto** (2018) Spatial areal data analysis with application to various Tuberculosis outcomes in Kenya. *Bull. Math. Stat. Res.* 6(3).
- A Otwande, **E Okuto**, J Ottieno (2018) Bayesian estimation of probability of contamination under group screening design, *Bull. Math. Stat. Res.* 6(3).
- **E Okuto** (2018) Binomial mixtures based on Beta I distribution and its generalizations to a two-stage group screening design. *Bull. Math. Stat. Res.* 6(3)

- A Otwande, **E Okuto**, J Ottieno (2017). Posterior Distribution of Beta Binomial mixture based on Beta II as prior distribution. *J. Math.* 4(4). ISSN:2349-5375.
- A Otwande, **E Okuto**, J Ottieno (2017) Fitting a recursive model for the Beta II - Binomial mixture into other recursive models: A case of Binomial generalized Gamma distribution, *Int. J. Sci. Eng/ Res.* 8(11):726. ISSN 2229-5518.
- H Yu, J Xu, **E Okuto**, E Luedeling (2012) Seasonal response of grasslands to climate change on the Tibetan Plateau, *PLoS One* 7(11): e49230

Funding

- 2023 to date ▪ Diversifying University Funding Sources by Ensuring Sustainable Inclusive and Equitable Quality Education and Promotion of Life Long Learning Opportunities Through TVET. Amount: KES 30 million per year. **Funded & PI**
- 2023 to date ▪ ERASMUS Project by the European Commission based in Germany - Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa: Curricula innovation - Developing competence-based master curriculum on Food Value Chain (FVC) at 6 partner Higher Educational Institutions (HEIs). Amount: 75761 Euros (KES 11,288,389). **Funded & Co PI**
- 2023 to date ▪ SIFA FW3 Call: (Call identifier SIFA FW3/CFP/1/2022) by the European Union, the first Call of Funding Window III from the SIFA FC Financing Facility, Amount: Euro 267,028.20 Title: Developing Skills for Bioenergy Production from Fortified Water Hyacinth. **Funded & PI**
- 2023 to date ▪ Using Community Responsive Dialogue to Tackle Noncommunicable Diseases Vulnerabilities and Policy Implementation Barriers Among Underserved Urban Communities in Kenya and Ethiopia (Adkin Cities Project). Global Alliance for Chronic Diseases (GACD) through the Canadian Institute of Health Research with focus on NCD in cities. Amount: \$2,000,000. Submitted through Canadian-based Nominated Applicant. **Under Review & Co PI**
- 2022-2025 ▪ The Science Granting Council's Initiative (SGCI) 2022 - IDRC's Head Office is located in Ottawa, Canada. Canadian\$ 1,350,000 Title: Advancing Data and Evidence-Based Science for Policy Formulation and Decision Making by Science Granting Councils in Sub-Saharan Africa. **Rejected & Co PI**
- 2022-2025 ▪ Bio-innovate Africa - International Centre of Insect Physiology and Ecology – ICIPE, Duduville Campus, Kasarani, Kenya. Bio-innovate: USD 1 Million Title: An Alternative Source of Income for Strengthening

- Food Security and Livelihood Resilience of Rural Farming Communities.
Rejected & Investigator
- 2021-2023 ▪ European & Developing Countries Clinical Trials Partnership (EDCTP) Capacity Development of Applied Epidemiologist in East Africa Region (750,000 EUROS). **Funded & Investigator**
- 2020-2023 ▪ The Food and Agriculture Organization (FAO) - Viale delle Terme di Caracalla 00153 Rome, Italy. FAO: KES 15 million. Piloting of blended learning course in nutrition and food systems. **Rejected & Co PI**
- 2020-2023 ▪ IDRC - International Development Research Centre, Ottawa, Canada. *IDRC: KES 100 million*. Bridging labor market and women entrepreneurship inequality through mentorship programs, business models and policy advocacy in lake victoria basin, kenya. **Rejected & Co PI**
- 2020-2023 ▪ Lacuna Fund (collaborative between The Rockefeller Foundation, Google.org, and Canada's International Development Research Centre). *Lacuna: KES 100 million*. Title: Monitoring croplands in low-and middle-income regions of Kenya using Earth observation data and Machine learning algorithms. **Rejected & PI**
- 2020-2023 ▪ Nuffic OKP TMT-Royal Tropical Institute (KIT), Sustainable Economic Development and Gender Unit, The Dutch Organisation for Internalisation in Education, Netherlands. *NufficOKP-TMT: KES 50 million*. Strengthening farmer-led, climate-resilient innovation for agri-entrepreneurship and food and nutrition security. **Rejected & Co PI**
- 2019-2023 ▪ Urban Health in the United Kingdom. Urban health: KES 100 million. Adaptation of responsive and sustainable approaches for prevention and control of respiratory infectious diseases within the context of Covid-19 Pandemic in the informal urban settlements in sub-Saharan Africa. **Rejected & PI**
- 2019-2023 ▪ Women's Economic Empowerment and Digital Finance (WEEDiFine), BRAC Institute of Governance and Development (BIGD) in Dhaka, Bangladesh. *WEE-DiFine: KES 33 million*. The Impact of Digital Financial Services on Economic Empowerment Among Women Fisherfolk in Lake Victoria Region. **Rejected & Investigator**
- 2020-2023 ▪ Innovative Approaches for Prevention and control of COVID-19 through an integrated enhanced contact tracing System and community engagement in Western Kenya. NRF Kenya: Amount KES 19,815,000. **Rejected & PI**

Postgraduate Supervision

Samson Ojung'a

- Degree: PhD in Applied Statistics
- Thesis: Extension of stage-based projection matrices and its application to population modelling of *Cestrum auratiacum* species.
- Institution: Jaramogi Oginga Odinga University of Science & Technology
- Year of Graduation: 2021.

Felix Oluoch

- Degree: PhD in Public Health
- Thesis: Evaluating the impact of geographic inequalities on the utilization of maternal health services in Siaya county, Kenya.
- Institution: Jaramogi Oginga Odinga University of Science & Technology
- Year of Graduation: 2023

Martha Akello Odhiambo

- Degree: PhD in Food Security and Sustainable Agriculture
- Thesis: Modelling spatial distribution and adaptations of crickets (*Orthoptera: gryllidae*) in the context of climate change.
- Institution: Jaramogi Oginga Odinga University of Science & Technology
- Year of Graduation: 2023

Andrea Otwande.

- Degree: PhD in Applied Statistics
- Thesis: Binomial mixtures based on Beta prior distributions and their generalizations with application to Group screening.
- Institution: Jaramogi Oginga Odinga University of Science & Technology.
- Year of Graduation: 2019

Emmaculate Alala

- Degree: PhD in Applied Statistics
- Thesis: Modelling Clustered Events with Copula survival time.
- Institution: Jaramogi Oginga Odinga University of Science & Technology
- Year of Graduation: 2024

Lavender Akoth

- Degree: PhD in Applied Statistics
- Thesis: Bayesian Joint Modelling of Edaphic and Climate Variabilities on Physio-Morphological Traits of Rain-Fed Rice
- Institution: Jaramogi Oginga Odinga University of Science & Technology
- Year of Graduation: 2024

Erick Oloo

- Degree: PhD in Applied Statistics
- Thesis: Evaluating Effect of Climate Variability and Extremes on Length of Growing Season and its Impact on Crop Productivity
- Institution: Jaramogi Oginga Odinga University of Science & Technology
- Year of Graduation: 2025

Evans Ochiaga

- Degree: PhD in Applied Statistics
- Thesis: A novel Multiple Imputation of Clinical Trials Records for Optimum Drug Efficacy with Random Forest
- Institution: Jaramogi Oginga Odinga University of Science & Technology
- Year of Graduation: 2024

Erick Omondi

- Degree: MSc in Applied Statistics
- Thesis: Comparative Analysis Of 2SLS And OLS Models in Determining the Effects of COVID-19 Vaccination-rates and Awareness on the Financial Performance of SMES
- Institution: Jaramogi Oginga Odinga University of Science & Technology
- Year of Graduation: 2023

Noah Adera.

- Degree: MSc in Biostatistics and Epidemiology
- Thesis: Statistical model for the operational management of inpatient beds in government referral hospitals in Kenya.
- Institution: Jaramogi Oginga Odinga University of Science & Technology
- Year of Graduation: 2021

Ongoma Jackson.

- Degree: MSc in Statistics
- Thesis: Estimation of small area mean using stratified sampling with auxiliary variables and optimal allocation in the presence of non-response.
- University: Masinde Muliro University of Science and Technology
- Year of Graduation: 2021

Charles Ngonga.

- Degree: MSc in Food Security and Sustainable Agriculture
- Thesis: Growth performance and economic efficiency of *Acheta domesticus* and *Gryllus bimaculatus* reared under improvised cage system for sustainable food production
- Institution: Jaramogi Oginga Odinga University of Science & Technology

- Year of Graduation: 2021

Shukrani Magundo.

- Degree: MSc in Statistics
- Thesis: Multiple discriminant analysis as applied to language distinction.
- Institution: Catholic University of Eastern Africa.
- Year of Graduation: 2018

Ndurya Ngolo.

- Degree: MSc in Statistics
- Thesis: An application of survival analysis on Broilers in *Ia Nyevu* poultry farm in Kaloleni sub-county
- Institution: Catholic University of Eastern Africa.
- Year of Graduation: 2018

Partnership Engagements

MOUs Signed

- Bondo Technical Training Institute
- Mawego Technical Training Institute
- Siaya Institute of Technology
- International Livestock Research Institute (ILRI)
- Siaya County Government Department of Public Health and Sanitation
- Kenya Medical Research Institute (KEMRI)
- Kenya Forestry Research Institute (KEFRI)

MOUs Pending Signature

- World Agroforestry Centre (ICRAF)
- Indigenous Resources Management Organization (IREMO)

Other partner Institutions

- TVET Authority
- TVET Curriculum Development, Assessment and Certification Council (TVET CDACC)
- Kenya National Qualification Authority (KNQA)
- Kenya Institute of Curriculum Development (KICD)

Other achievements

- University Public Health and Occupational Safety License in readiness for TVET Implementation
- Three months research exchange visit at the Kenya Forest Research Institute (KEFRI) in 2021.

Outreach Activities

2019 - Present
2023 - Present

- BOM, Marindi Girls Secondary School, Academic Committee Chairman.
- BOM, Wiobiero Secondary School, BOM Member

- Academic Programs Spearheaded
- PhD Biostatistics
 - MSc Biostatistics
 - BSc Biostatistics
 - BSc. Applied Statistics with Computing
 - Short course (Applied Data Analysis and Statistical Modelling in Epidemiology)
 - TVET Programmes (26 Adapted programmes) for the University

- Other External Collaborations
- Amref International University (AMIU)
 - Catholic University of Eastern Africa (CUEA)
 - University of Embu

- MEMBERSHIP IN PROFESSIONAL SOCIETIES AND/ ORGANIZATIONS
- The international *Biometric Society*
 - *GitHub* Community
 - Bayesian computing with Integrated Nested Laplace Approximation *R-INLA* project.
 - *edX* and *Coursera* MOOCS online community
 - *rblogs* and have contributed at least 20 blogs
 - *Stack Overflow* - Where R Developers Learn, Share, & Build packages

Consultancies

10/12/2021-30/12/2021 Data Analyst and Statistician

Through the Vlaamse Interuniversitaire Raad – Universitaire Ontwikkelingssamenwerking (VLIR-UOS) supported project “Strengthening Jaramogi Oginga Odinga University of Science and Technology’s Capacity in Natural Resource Management, Food Security and Health.” Specific duties included to train the 26 enumerators and 13 field supervisors on the use of Open Data Kit (ODK) powered by FormShare; Coordinate the online data collection and submissions; Conduct quality checks and data management of all data from about 1800 online submissions from the sampled 9 counties in the Lake Victoria region covered as transects- Northern transect (Trans Nzoia, Busia, Kakamega, and Siaya counties), Middle transect (Kericho and Kisumu counties) and Southern transect (Homa Bay, Nyamira and Migori counties); Analyse the data using R and coordinate gender analysis report writing, Liaise with the sub project leaders in performing the task.

04/02/2020-30/04/2020 Data handling and project Statistician

Transparency International (TI): Specific duties included to train the enumerators on the use of Open Data Kit (ODK); Coordinate data collection and provide analysis on the data collected; Conduct quality checks and data management of all data from about 400 online submissions from the 35 wards in Kisumu County; Analyse the data using R and prepare statistical report, liaise with the colleague consultant, County Director of Climate Change and TI Kenya contact person in performing the task

01/11/2020-30/01/2021 Data Analyst and Statistician

World Agroforestry Centre (ICRAF): The World Agroforestry Centre was implementing the Green Climate Fund project on Large-scale Ecosystem-based Adaptation (EbA) in the Gambia River Basin: developing a climate resilient, natural resource-based economy project. As part of this project, a baseline household survey on socio economic profile, agricultural activities and climate risks faced and

on-farm adaptations in readiness for EbA project activities report was generated for decision making.

01/02/2021-26/03/2021 Data Analyst and Statistician

World Agroforestry Centre (ICRAF): The World Agroforestry Centre was implementing the Green Climate Fund project on Large-scale Ecosystem-based Adaptation (EbA) in the Gambia River Basin: developing a climate resilient, natural resource-based economy project. As part of this project, a survey on vegetation characteristics for the purpose of monitoring was conducted and a baseline vegetation monitoring statistical report was generated for decision making.

27/03/2021-26/05/2021 Data Analyst and Statistician

World Agroforestry Centre (ICRAF): The World Agroforestry Centre was implementing the Green Climate Fund project on Large-scale Ecosystem-based Adaptation (EbA) in the Gambia River Basin: developing a climate resilient, natural resource-based economy project. As part of this project, a baseline survey and analysis of Community Forest (CF) and Community Protected Areas (CPA) was conducted and statistical report developed for decision making.

20/03/2021-21/05/2021 Data handler and Statistician

SNV Netherlands Development Organisation: The project's aim was to reduce the vulnerability of drylands populations by reinforcing risk management and coping capacities by augmenting existing adaptation mechanisms and supplementing them with new options that are tailored to the unique local contexts. The project was implemented in Laikipia, Isiolo, Samburu by transforming the Environment through Nexus (LISTEN). LISTEN was a 3.6 million Euro project funded by the Embassy of the Kingdom of the Netherlands and implemented by a consortium of partners comprising Frontier Counties Development Council (FCDC), Alliance for a Green Revolution in Africa (AGRA) and SNV Netherlands Development Organisation with SNV as the lead agency. The 3.5-year Project was seeking to enhance resilience by increasing food, nutrition, and water security in the three selected Arid and Semi-Arid Lands (ASAL) counties of Laikipia, Isiolo Samburu in Kenya. To kick start the Project, a baseline survey was commissioned with the aim of undertaking a review, survey and verification of LISTEN project goals, objectives, target groups and expected result areas to establish the baseline indicator profile against which project targets shall be set for implementation, performance monitoring and evaluation. This provided Baseline Project's key indicators and the benchmarks to measure the project performance.

25/09/2021-28/10/2021 Data handler and Statistician

Hoffnungszeichen — Sign of Hope e.V. and Merti Integrated Development Program (MIDP): A consultancy on baseline survey on the promotion of climate resilient communities and capacity building of local institutions and community organizations in Isiolo county (SCORE). The baseline study was conducted in six rural wards (Chari, Cherab, Sericho, Garbatulla, Kinna and Oldonyiro) in Isiolo County, Kenya.

The Consultant's role was to undertake the baseline study and identify project metrics and indicator benchmarks. The baseline study involves collection of both quantitative and qualitative data that to enable determination of the baseline values of the project's performance indicators during the formative stages of the project.

Reference

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