



# THE TECHNICAL UNIVERSITY OF KENYA

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## EDUCATION

LEVEL	QUALIFICATION NAME	INSTITUTION	YEAR
Doctor of Philosophy (PhD)	Bioinformatics	University of the Western Cape(South Africa)	2015
Masters of Science (M.Sc.)	Cell and Molecular Biology	Maseno University(Kenya)	2011
Bachelor of Science (BSc)	Agricultural Education and Extension	Egerton University(Kenya)	2001
Diploma	Human Resource Management	Kenya Institute of Management(Kenya)	2007
Certificate	Kenya Certificate of Primary Education	Sihay Primary School(Kenya)	1990
O level/Equivalent	Kenya Certificate of Secondary Education	Ambira High School(Kenya)	1994

## WORK EXPERIENCE

PERIOD	INSTITUTION	POSITION
2015 - todate	The Technical University of Kenya (TU-K)	Lecturer and Researcher
2012 - 2018	JKUAT	Sessional Lecturer
2016 - 2018	Max Planck Institute for Chemical Ecology, Jena, Germany	Post Doctoral Research
2011 - 2014	ICIPE, Duduville Campus, Nairobi	ARPPIS PhD Scholar
2002 - 2011	High School	Graduate Science Teacher I
2009 - 2010	International Livestock Research Institute (ILRI), Nairobi, Kenya	Graduate Research Scholar

## GENERAL STATEMENT ON RESEARCH AREAS

Entomological and Microbial Genomics, Neurogenetics and Molecular Biology. Insects and microorganisms play critical roles in the lives of humans, animals and plants in Africa by destroying crops, vectoring tropical infectious and neglected diseases. Studying the specific genes encoded in the DNA of insects and microbial species (including apicomplexans, bacteria and viruses) helps tounderstand their biology and ecology.

#### CURRENT RESEARCH PROJECTS

The Chemoreception in Solitary Insects, Apoidea | Genomics and Neurogenetics of insects.

#### SELECTED PUBLICATIONS

TITLE	LINK TO PULICATION
(2018) Expression Levels of Odorant Receptor Genes in the Savanna Tsetse Fly, <i>Glossina morsitans morsitans</i> . <i>Journal of Medical Entomology</i> , 55(4), 855-861	<a href="https://doi.org/10.1093/jme/tjy018">https://doi.org/10.1093/jme/tjy018</a>
(2019) Rotavirus prevalence and seasonal distribution post vaccine introduction in Nairobi county Kenya. <i>The Pan African Medical Journal</i> ; 33:269.	<a href="http://www.panafrican-med-journal.com/content/article/33/269/full">http://www.panafrican-med-journal.com/content/article/33/269/full</a>
(2018) In silico structural and functional prediction of African swine fever virus protein-B263R reveals features of a TATA-binding protein. <i>PeerJ</i> 6:e4396, 1-18.	<a href="https://doi.org/10.7717/peerj.4396">https://doi.org/10.7717/peerj.4396</a>
(2019) Inverse resource allocation between vision and olfaction across the genus <i>Drosophila</i> . <i>Nature Communications</i> , 10:1162, 1-16.	<a href="https://doi.org/10.1038/s41467-019-09087-z">https://doi.org/10.1038/s41467-019-09087-z</a>
(2019) Evolution of a pest: towards the complete neuroethology of <i>Drosophila suzukii</i> and the subgenus <i>Sophophora</i> . <i>bioRxiv preprint</i>	<a href="http://dx.doi.org/10.1101/717322">http://dx.doi.org/10.1101/717322</a>
(2019) The olfactory coreceptor IR8a governs larval feces-mediated competition avoidance in a hawkmoth. <i>PNAS Latest articles</i> 1-6.	<a href="http://www.pnas.org/cgi/doi/10.1073/pnas.1913485116">http://www.pnas.org/cgi/doi/10.1073/pnas.1913485116</a>
(2014) Chemosensory receptors in tsetse flies provide link between chemical and behavioural ecology. <i>Trends in Parasitology</i> . DOI:10.1016/j.pt.2014.06.007.	<a href="http://www.sciencedirect.com/science/article/pii/S147149221400110X">http://www.sciencedirect.com/science/article/pii/S147149221400110X</a>
(2014) Genome Sequence of the Tsetse Fly ( <i>Glossina morsitans</i> ): Vector of African Trypanosomiasis. *Obiero co-authored the chemosensory section of the article. <i>Science</i> 344 (6282): 380-386. DOI:10.1126/science.1249656.	<a href="http://www.sciencemag.org/cgi/collection/genetics">http://www.sciencemag.org/cgi/collection/genetics</a>
(2014) Odorant and Gustatory Receptors in tsetse fly <i>Glossina morsitans morsitans</i> . <i>PLoS Negl Trop Dis</i> 8:e2663.	<a href="http://www.plosntds.org">http://www.plosntds.org</a> DOI:10.1371/journal.pntd.0002663
(2020) Post-vaccine rotavirus genotype distribution in Nairobi County, Kenya. <i>International Journal of Infectious Diseases</i> 100 (2020) 434-440.	<a href="https://doi.org/10.1016/j.ijid.2020.09.005">https://doi.org/10.1016/j.ijid.2020.09.005</a> .
(2015, Thesis) Genome-wide annotation of chemosensory and glutamate-gated receptors, and related genes in <i>Glossina morsitans morsitans</i> tsetse fly. Published Doctoral thesis, University of the Western Cape.	<a href="http://www.uwc.ac.za">http://www.uwc.ac.za</a>
(2021) Chemoreceptor diversity in apoid wasps and its reduction during the evolution of the pollen-collecting lifestyle of bees (Hymenoptera: Apoidea). Published 23 January 2021,	<a href="https://doi.org/10.1093/gbe/evaa269">https://doi.org/10.1093/gbe/evaa269</a>

NAME	PROJECT TITLE	PERIOD
Joshua Gikonyo (PhD), TUK	Impact of Rotavirus Vaccine: A case study in selected health facilities in Nairobi county, Kenya.	2017-todate
Kevin Marucha Kamanyi (MSc.), Egerton University	Evolution of Vitamin And Co-enzyme genes in insects.	2012-2014
Bennet Kinyanyi (PhD), TU-K	Application of Structural Bioinformatics in African Swine Fever Virus antivirals	on-going
Cyrus Tare (MSc.), JKUAT	Expression profiles of odorant receptor genes in the savannah tsetse fly <i>Glossina morsitan morsitans</i> .	2015-2017
Millicent T. Mumbo (MSc.), JKUAT	Diversity of neurotransmitter receptor genes in genomes of tsetse fly species.	2015-2018
Matilda Gikonyo, MSc. (JKUAT)	Molecular traits of <i>Frankliniella thrips</i> species in Kenya.	2013-2015

#### COURSES TAUGHT

NAME	DESCRIPTION	PERIOD
Internet Technology and Applications in Bioinformatics	Genomic DNA and Proteins are studied using computer systems, via online linkages to various databases that host bioinformatic tools and molecular data. The students need to understand the underlying principles of internet functioning as a research tool in biological sciences.	2012 - 2016
Introduction to Bioinformatics	Gives the students the link between molecular biology and computational biology. Also, it provides a link from wet lab techniques of generating molecular data to use of computer systems to store, analyze and transfer the data to other computer systems. It covers databases and various bioinformatic analyses and their programs/tools.	September 2015 - TO-DATE
Molecular Immunology	Introduces the molecular mechanisms of how immune cells generate the diverse antibodies, cytokines, and receptors. It also examines how autoimmune disorders arise.	September 2015 - TO-DATE
Molecular Biology	Introduces undergraduate students to the organization of DNA in various organisms; recombinant DNA technologies of manipulating DNA to produce various products, and gene expression mechanisms.	September 2015 - TO-DATE
Molecular Physiology	Introduces the students to the molecular basis of the structure and functionality of the cell membrane pertaining to various physiological processes.	2019 - todote
Bioinformatics and Molecular Biology	Introduces basic concepts in Bioinformatics, molecular database systems and information retrieval, Sequences analysis, structural analysis, principles of drug design.	January 2021 - March 2021

#### PROFESSIONAL AFFILIATIONS AND SOCIETIES

TITLE	INSTITUTION
Cell And Molecular Biology	Maseno University, Kenya
Genomics & Chemical Ecology	Max Planck Institute of Chemical Ecology, Jena, Germany
Bioinformatics	University of the Western Cape, Cape Town, South Africa
Agricultural Education	Egerton University