CURRICULUM VITAE

Dr. SAMUEL BONG'ANG'A APIMA, PhD

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PERSONAL DETAILS

NATIONALITY:	Kenyan
SEX:	Male
MARITAL STATUS:	Married
RELIGION:	Christian

PROFILE

Dr. Samuel Apima is a senior lecturer and the founding and current Chair of the Department of Mathematics and Statistics at Kaimosi Friends University. He holds a PhD in Applied Mathematics, a Master of Science in Applied Mathematics (both from Masinde Muliro University of Science and Technology), and a Bachelor of Science with a major in Mathematics and a minor in Computer Science from the University of Eastern Africa, Baraton. He has held a number of management positions in the university, Church, and community in addition to his work in teaching, supervision and research; publishing multiple papers in peer-reviewed journals. His credentials, background, key principles, and accomplishments are clear and consistent with his career objective: Become a well-known researcher and lecturer in the field of mathematics; investigate its real-world applications in a variety of fields through research; and use knowledge, skills, experiences, and expertise gained as well as talent capabilities to serve and improve an organization's vision, mission, and objectives while creating a hospitable environment for society.

Dr. Samuel Apima is a talented and enthusiastic lecturer who is committed to creating a collaborative, student-centred learning environment which will assist students in discovering and pursuing their own passions so they can grow into successful, self-assured adults.

RESEARCH INTERESTS

My research interests lie in mathematical modelling, Biomathematics and dynamical systems:
- Mathematical modelling of Predator Prey Systems
- Mathematical modelling of Plant Herbivore Systems
- Mathematical modelling of diseases e.g. HPV & COVID-19

CAREER SUMMARY

1st April 2025 – Present: **Senior Lecturer**, Department of Mathematics and Statistics, Kaimosi Friends University (KAFU)

Key Responsibilities:
- Teaching, examining and supervising postgraduate students in mathematics.
- Teaching and examining undergraduate students in mathematics.
- Administering, supervising and marking examinations and continuous assessment tests.
- **Program leader for** BSc. Mathematics and Economics with I.T and MSc. Applied Mathematics
- **Class advisor** for BSc. Mathematics with I.T. and BSc. Mathematics and Economics with I.T.
- Advising students on academic matters.

1st November 2021 – 31st March, 2025: **Lecturer**, Department of Mathematics and Statistics, KAFU {Formerly Kaimosi Friends University College}

Key Responsibilities:
- Teaching, examining and supervising postgraduate students in mathematics.

- Teaching and examining undergraduate students in mathematics.
- Administering, supervising and marking examinations and continuous assessment tests.
- **Class advisor** for BSc. Mathematics with I.T. and BSc. Mathematics and Economics with I.T.
- Advising students on academic matters.

September 2017 – October 2021: **Tutorial Fellow**, Department of Mathematics and Statistics, Kaimosi Friends University College (KAFUCO)
Key Responsibilities:
- Teaching and examining undergraduate students in mathematics.
- Administering, supervising and marking examinations and continuous assessment tests.
- Class advisor for BSc. Mathematics with I.T. and BSc. Mathematics and Economics with I.T.
- Advising students on academic matters.

January 2017 – August 2017: **Part-time Mathematics Lecturer**, Kaimosi Friends University College
Key Responsibilities:
- Teaching and examining undergraduate students in mathematics.
- Administering, supervising and marking examinations and continuous assessment tests.

2014 – 2018: **Part-time Mathematics Lecturer**, Masinde Muliro University Science and Technology
Key Responsibilities:
- Teaching and examining undergraduate students in mathematics.
- Administering, supervising and marking examinations and continuous assessment tests.

2014 – 2017: **Part-time Mathematics Lecturer**, Kibabii University
Key Responsibilities:
- Teaching and examining undergraduate students in mathematics.
- Administering, supervising and marking examinations and continuous assessment tests.

September 2011-Present   : **Freelance Work**
- Providing Mathematics and Statistical Tutorials
- ICT consultancy on Mathematical and Statistical Softwares (Matlab, Mathematica, LaTex,) and Microsoft office packages (MS Word, MS Excel, MS PowerPoint)

January 2011 - August 2011 : **B.O.G. Teacher**, Motagara Girls High School
Key Responsibilities:
- Teaching Mathematics and Computer Studies
- Class Teacher Form 2

Administration and responsibilities

November 2021 – Present: Chair of Department (CoD), & October 2017 –October 2021: Coordinator of Department (CoD), Department of Mathematics and Statistics, KAFU
Key Responsibilities:
- Articulating and implementing the mission and objectives of the department
- Convening and chairing departmental board meetings
- Represent the department in the Senate, School board, University college Academic board and other boards of the University College as required
- Promoting and maintaining a conducive working environment within the department
- Planning and Budgeting for the department
- Preparing departmental reports
- Overseeing examinations as chief examiner in the department
- Managing academic programmes in the department as required by Senate and University college Academic board
- Supervising and Appraising the performance of academic and other staff in the department

- Making recommendations with respect to discipline, probation, advancement, and promotion of academic staff within the department
- Maintaining asset registers for the department
- Advising students on academic matters.

21st April 2021 – 18th May 2021 & 20th May 2021 – 24th June 2021: Acting Dean, School of Science, KAFUCO

Key Responsibilities:

- Convening and chairing regular school board meetings.
- Articulating a leadership vision and strategic plan for evaluating the academic programs and curriculum with the program committees, faculty, staff and students
- Providing oversight and support for national wide student recruitment and retention activities
- Providing leadership in development, implementation and review of school academic programmes
- Managing teaching and learning resources in the school
- Supervising overall teaching, learning and examinations in the school
- Providing leadership in research, innovation and community outreach programs
- Providing mentorship and advisement to faculty
- Processing students for graduation
- Preparing and submitting school budget for approval by University College Management Board
- Representing the school on University College Academic Board, Senate, Deans Committee and other boards of the University College as required
- Maintaining asset registers for the school

EDUCATION BACKGROUND

Institution: Masinde Muliro University of Science and Technology (MMUST)
Certificate: **Doctor of Philosophy in Applied Mathematics**   **Date**: 2017 – 2020
Thesis topic: *A predator-prey model with logistic growth for constant and density-dependent delayed migration*

Institution: Masinde Muliro University of Science and Technology (MMUST)
Certificate: **Masters of Science in Applied Mathematics**   **Date**: 2011 – 2014
Thesis topic: *A predator-prey model incorporating delay in migration*

Institution: University of Eastern Africa, Baraton (UEAB)
Certificate: **BSc. Mathematics** (Major) **and Computer Science** (Minor)
Date: 2007 – 2010   **Grade:** Second Class, Upper division

Institution: Kamagambo High School   **Date:**   2003 – 2006
Certificate: Kenya Certificate of Secondary Education (KCSE)   **Grade:** B-

Institution: Riomego Primary School   **Date:**   1995 – 2002
Certificate: Kenya Certificate of Primary Education (KCPE)   **Grade:** A –

PUBLICATIONS IN REFEREED JOURNAL

1. Wakwabubi N. Christine, **Samuel B. Apima** and Bonface Kwach (2024) *A Mathematical Model for Rotavirus Infection Incorporating Time Delay on the Effectiveness of Vaccination with Treatment,* Asian Research Journal of Mathematics, 20(8), 76-91, ISSN: 2456-477X.
2. **Samuel B. Apima**, Jacinta M. Mutwiwa & Isaac K. Barasa (2024), *An SVEIR COVID-19 Mathematical Model with Double Dose Vaccination*, Asian Research Journal of Mathematics, ISSN: 2456-477X, 20(8), 92-101

3. Mogoi N. E., **Samuel B. A.,** & Amos O. W. (2024) *Advancements in the Analysis of Sobolev Spaces and Function Spaces on Manifolds: Theoretical Framework and Applications Advances in Research*, ISSN: 2348-0394, 25(3), 148-153

4. Mogoi E. N., Amos O. W., & **Apima S. B** (2024) *Analysis of Norm-Attainability and Convergence Properties of Orthogonal Polynomials in Weighted Sobolev Spaces,* Asian Research Journal of Mathematics ISSN: 2456-477X, 20(4), 1-7

5. Mogoi N. Evans and **Samuel B. Apima** (2024) *Norm-Attainable Operators in Hilbert Spaces: Properties and Applications*, Advances in Research ISSN: 2348-0394, 25(1), 65-70

6. Mogoi N. Evans and **Samuel B. Apima** (2024), *Interplay of Sobolev Spaces on Compact Manifolds: Embedding Theorems, Inequalities, and Compactness,* Advances in Research ISSN: 2348-0394, 25(1), 21-25

7. Fednant O. Okware, **Samuel B. Apima** and Amos O. Wanjara (2023) *Mathematical Modelling of Human Papillomavirus (HPV) Dynamics with Vaccination Incorporating Optimal Control Analysis,* Asian Research Journal of Mathematics, 19(11), 36-51, ISSN: 2456-477X.

8. Mogoi E. N. & **Apima S. B**. (2023**)** *Properties and Analysis of a Second Order Differential Operator with Normality and Orthogonality,* Journal of Advances in Mathematics and Computer Science 38(10), 101-112, ISSN: 2456-9968.

9. Mogoi E. N. & **Apima S. B**. (2023**)** *Norm-Attainable Polynomials: Characterizations and Properties in Orthogonal Polynomial Families,* Asian Research Journal of Mathematics, 19(10), 161-168, ISSN: 2456-477X.

10. Mogoi N. Evans & **Samuel B. Apima** (2023) *Properties and Characterizations of Norm-Attainable Operators in Compact and Self-Adjoint Settings,* Asian Research Journal of Mathematics, 19(10), 96-102, ISSN: 2456-477X.

11. Isaac K. Barasa & **Samuel B. Apima** (2023) *Mathematical Modeling of Plants, Herbivore and Natural Enemies of Herbivores Interaction with Harvesting,* Asian Research Journal of Mathematics, 19(10), 7-15, ISSN: 2456-477X   .

12. Jacinta M. Mutwiwa and **Samuel B. Apima** (2023) *Mathematical Analysis of HPV and Cervical Cancer Model in the Presence of Protection*, Asian Research Journal of Mathematics, 19(8), 1-11, ISSN: 2456-477X.

13. Isaac K. Barasa, **Samuel B. Apima** and Amos O. Wanjara, (2022) *Mathematical Modelling of Plant-Pathogen-Herbivore Interaction Incorporating Allee Effect and Harvesting,* Journal of Advances in Mathematics and Computer Science, 37(9): 23-38, ISSN: 2456-9968.

14. Celestine L. Muchika, **Samuel Apima** and Frankline Tireito, (2022) *Mathematical Modeling of Alcoholism Incorporating Media Awareness as an Intervention Strategy,* Journal of Advances in Mathematics and Computer Science, 37(10): 1-15, ISSN: 2456-9968.

15. **Samuel B. Apima** and Jacinta M. Mutwiwa (2020) *An SEIQR mathematical model for the spread of COVID-19,* Journal of Advances in Mathematics and Computer Science, 35(6), 35-41, ISSN: 2456-9968.

16. **Apima B. Samuel**, (2020). *A Predator-Prey Model with Logistic Growth for Constant Delayed Migration,* Journal of Advances in Mathematics and Computer Science, 35(3), 51-61, ISSN: 2456-9968.

17. **Samuel A.B**., George L.O., and Kagendo N.J., (2019) *Rosenzweig-MacAurther Model with Holling type II Predator Functional Response for Constant Delayed Migration*. Asian Research Journal of Mathematics, 15(1)1-14, ISSN: 2456-477X.

18. **Apima S.B**., Lawi G.O., and Kagendo N.J., (2019) *Density Dependent Delayed Migration for Rosenzweig-MacAurther Model with Holling Type II Predator Functional Response.* Asian Research Journal of Mathematics, 15(3)1-12, ISSN: 2456-477X.

19. Mabwago, A., George, L., **Samuel, A.,** and Otieno, J., (2019) *Modelling delay in migration for constant predator and predator-density-dependent prey migration*. Journal of Advances in Mathematics and Computer Science, 33(6), 1-11, ISSN: 2456-9968.

20. Wasike A.M., **Bong'ang'a A.S**., Lawi G.O., Nyukuri M.O., (2014) *A Predator-Prey Model with a Time Lag in the Migration* Applied Mathematical Science Vol. 8 No. 75: 3721-3732

Conference Paper

- Samuel B. Apima and Jacinta M. Mutwiwa (2019) **A seir model for the spread of influenza,** Kibabii University 4th International Conference, 12th – 14th June, 2019, Kibabii University, Bungoma, Kenya

WORKSHOPS, CONFERENCES & SEMINARS ATTENDED

- ❖ 2nd KAFU national virtual conference, 13th -14th May, 2024, Topic: Mogoi E. N., Amos O. W., & Apima S. B, *Analysis of Norm-Attainability and Convergence Properties of Orthogonal Polynomials in Weighted Sobolev Spaces*
- ❖ Exploring Biophysics Diversity for Sustainable Industrial and Economic Development, 3rd – 4th July, 2019, Masinde Muliro University of Science and Technology, Kakamega, Kenya
- ❖ Kibabii University 4th International Conference, 12th – 14th June, 2019, Kibabii University, Bungoma, Kenya
- ❖ 2nd Research Capacity Building Seminar on Grant Proposal Writing, 7th February, 2019, Kaimosi Friends University College, Vihiga, Kenya
- ❖ Odel Training Workshop, 23rd – 28th May, 2018, Kaimosi Friends University College, Vihiga, Kenya
- ❖ CIMPA School Kenya, Mathematical Modeling and Analysis of Complex Systems, 20th to 31st July, 2015, Lake Naivasha Panorama Park, Naivasha, Kenya.
- ❖ First Kenyatta University Workshop on Mathematical Modeling, 17th – 21st June, 2013, Kenyatta University, Nairobi, Kenya

PRESENTATIONS

1. 2nd KAFU national virtual conference, 13th -14th May, 2023, Topic: Mogoi E. N., Amos O. W., & Apima S. B (2024) *Analysis of Norm-Attainability and Convergence Properties of Orthogonal Polynomials in Weighted Sobolev Spaces*

2. Exploring Biophysics Diversity for Sustainable Industrial and Economic Development, 3rd – 4th July, 2019, Masinde Muliro University of Science and Technology, Kakamega, Kenya

   a.   Apima B.S, Lawi G.O., Kagendo J.N, Oganga D.O, Mobisa B, Mawakat H
   Topic: A Predator-Prey Model with logistic growth for constant delayed migration
   b.   Mawakat H, Lawi G.O., Akinyi C.O. Oganga D.O, Mobisa B, Apima B.S
   Topic: Dynamics of a fishery model with Allee effects in population growth
   Mobisa B, Lawi G.O., Kagendo J.N, Oganga D.O, Apima B.S, Mawakat H
   c.   Topic: Modelling in Vivo HIV dynamics under combined antiretroviral treatment

3. Apima B. Samuel and Jacinta M. Mutwiwa. Kibabii University 4th International Conference, 12th – 14th June, 2019, Kibabii University, Bungoma, Kenya Topic: An SEIR Model for the spread of Influenza

Supervision

1. Isaac Barasa   **University**: Kaimosi Friends University

Program: MSc. in Applied Mathematics   **Status**: Graduated in December 2022

Thesis topic: Mathematical Modelling of Plant-Pathogen-Herbivore Interaction Incorporating Allee Effect and Harvesting

2. Celestine Muchika   **University**: Kaimosi Friends University

Program: MSc. in Applied Mathematics   **Status**: Graduated in December 2022

Thesis topic: Mathematical modelling of alcoholism incorporating awareness as a treatment strategy

3. Christine Wakwabubi   **University**: Kibabii University

Program: MSc. in Applied Mathematics   **Status**: Graduated in November 2024

Thesis topic: Mathematical model for rotavirus infection incorporating time delay on the effectiveness of vaccination with treatment

4. Fednant Okware   **University**: Kaimosi Friends University

Program: MSc. in Applied Mathematics   **Status**: Graduated in November 2024

Thesis topic: Mathematical Modelling of Human Papillomavirus Dynamics with Vaccination Incorporating Optimal Control Analysis

5. Nebat Wafula   **University**: Kibabii University

Program: PhD in Applied Mathematics   **Status**: Ongoing

Thesis topic: A heterogeneous predator-prey model incorporating prey-taxis and delay in predators

6. Isaac Barasa   **University**: Kibabii University

Program: PhD in Applied Mathematics   **Status**: Ongoing

Thesis topic: Mathematical modelling of alcoholism incorporating awareness as a treatment strategy

7. Dennis Aluchina Achayo   **University**: Kaimosi Friends University

Program: MSc. in Applied Mathematics   **Status**: Ongoing

Thesis topic: Mathematical analysis of a tuberculosis model incorporating vaccination, treatment and Re-infection

COMMUNITY SERVICE

- ✓ Guest speaker during the 2024 Chebwai Adventist Secondary
- ✓ Elder, SDA-Church, Harmony Kakamega, 2024
- ✓ PTA Chair, Satelite Academy, Kakamega, March 2024 to February, 2024
- ✓ Deacon, SDA-Church, Harmony Kakamega, 2023
- ✓ Chair of Strategic plan committee, SDA-Church, Harmony Kakamega, 2023
- ✓ First Church Elder, Kaimosi Friends University SDA, 2021-2022
- ✓ Facilitator, Tente SDA Youth Camp, 28th December 2020 to 2nd January 2021, Tente SDA church, Nyamira County, Kenya
- ✓ Patron, KAFUCO SDA, 2018-2021
- ✓ Organised and participated at the Tente SDA Youth Camp-out, 10th April to 17th April 2011, Tente SDA church, Nyamira County, Kenya

FUNDS ATTRACTED

- ✓ Led in book donation of over 122 books to Kaimosi Friends University in 2024

OTHER RESPONSIBILITIES

- ✓ Chair, Productivity Mainstreaming Committee, January 2025 - Present, KAFU
- ✓ Reviewer and session chair of 2nd KAFU national virtual conference, 13th -14th May, 2023
- ✓ Reviewer of 1st KAFU national virtual conference, 15th -16th May, 2023
- ✓ Internal Auditor, Quality Management System, KAFU

- ✓ Process Owner, Quality Management System, KAFU
- ✓ Member, First KAFUSA electoral Commission, 2023, KAFU
- ✓ Presiding Officer, Independent Electoral and Boundaries Commission, West Mugirango Constuency, Kiang'inda BED primary polling station II, 8th August, 2017

KEY I.T SKILLS

- ✓ Mathematical and Statistical Softwares (Matlab, Mathematica, LaTex)
- ✓ Microsoft office packages (MS Word, MS Excel, MS PowerPoint)

REFEREES

Prof. George Lawi
Associate Professor, Department of Mathematics - MMUST
P.O. Box 190, Kakamega
Mobile Phone: +254-722-292 635, e-mail: glawi@mmust.ac.ke

Dr. Samuel Maragia
Senior Lecturer, Department of Education Foundation, Planning and Management
Kaimosi Friends University
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Mobile Phone: +254-720-216 614, e-mail: smaragia@kafu.ac.ke

Dr. George Opande
Senior Lecturer and Dean, School of Science
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