

# CURRICULUM VITAE

**Dr. Patrick Mwangi Kimani**

## Personal Details

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## Career Objective

To serve in any organization with the aim of applying acquired knowledge, sharing expertise with colleagues, improving quality of work, promoting innovation, and contributing towards the achievement of the organization's vision and mission.

## Education

- Sep 2014 – Jul 2019: PhD in Pure Mathematics, Kenyatta University
- 2012 – Jul 2014: Master of Science (Pure Mathematics), Kenyatta University
- 2007–2012: Bachelor of Education (Science), First Class Honours, Kenyatta University
- 2002–2005: Kangema High School, KCSE (B+)
- 1991–2001: Matharite Primary School, KCPE (350/500)

## Professional Experience

- Oct 2021 to Date: Lecturer, Department of Mathematics and Statistics, University of Embu.
- Oct 2019 to Dec. 2020: Lecturer, Department of Mathematics and Computer Science, University of Kabianga.
- Jan 2016 – Oct 2019: Tutorial Fellow, Department of Mathematics and Computer Science, University of Kabianga.
- Aug 2014 – Dec 2015: Part-time Lecturer, KCA University.
- Apr 2015 – Dec 2015: Part-time Lecturer, Karatina University.
- May 2014 – Dec 2015: Part-time Lecturer, Kenyatta University.
- Sep 2012 – Aug 2014: Teaching Assistant, Kenyatta University.

## Administrative Responsibilities

- March–August 2025: Examinations Coordinator, Department of Mathematics and Statistics, University of Embu.

- August 2025 to Date: School Examinations Coordinator, School of Pure and Applied Sciences, University of Embu.

## Publications

1. **Kimani, P.**, Rimberia, J., Muthoka, G., & Lao, H. (2014). Application of Marks to Computation of Ranks and Subdegrees of the Symmetric Group Acting on Ordered Pairs and on Ordered Triples. *Journal of Mathematical Theory and Modeling*, 4, 95–102.
2. Muthoka, G., Kamuti, I., Lao, H., & **Kimani, P.** (2015). Cycle Index Formulas for  $D_n$  Acting on Unordered Pairs. *Journal of Mathematical Theory and Modeling*, 5, 16–22.
3. **Kimani, P.**, Rimberia, J., Muthoka, G., & Lao, H. (2015). Application of Marks to Computation of Ranks and Subdegrees of the Symmetric Group Acting on Ordered 4-element and on Ordered 5-element Subsets. *Journal of Mathematical Theory and Modeling*, 5, 17–24.
4. Lao, H., Kivunge, B., **Kimani, P.**, & Muthoka, G. (2015). Enumeration of Cyclic Codes Over  $GF(17)$ . *Journal of Scientific Research and Innovative Technology*, 2, 103–111.
5. Kimani, J. G., Kinyanjui, J. N., Rimberia, J., **Kimani, P.**, & Muchemi, J. K. (2015). Transitivity Action of  $A_n$  ( $n=4,5,6,7$ ) on Ordered and Unordered Quadruples. *Journal of Mathematical Theory and Modeling*, 5, 111–123.
6. Muthoka, G., Kamuti, I., **Kimani, P.**, & Lao, H. (2015). Cycle Index Formulas for  $D_n$  Acting on Ordered Pairs. *International Journal of Science and Research*, 5, 1980–1983.
7. Lao, H., Kivunge, B., **Kimani, P.**, & Muthoka, G. (2018). On the Number of Cyclotomic Cosets and Cyclic Codes over  $Z_{13}$ . *International Journal of Scientific Research and Innovative Technology*, 5(6), 58–68.
8. **Kimani, P.**, Kamuti, I., & Rimberia, J. (2019). Cycle Index Formula for  $G=PSL(2,q)$  Acting on the Cosets of  $H=PSL(2,e)$ , where  $q$  is an Even Power of  $e$ . *International Journal of Scientific Research and Innovative Technology*, 6, 1–10.
9. **Kimani, P.**, Kamuti, I., & Rimberia, J. (2019). Rank and Subdegrees of  $PGL(2,q)$  Acting on Cosets of  $PGL(2,e)$  for  $q$  an Even Power of  $e$ . *International Journal of Algebra*, 13, 29–36.
10. Ndichu, F. T., Kamaku, P. W., & **Kimani, P. M.** (2020). Action of  $GL(2,q)$  on Non-zero Vectors Over  $GF(q)$ . *International Journal of Algebra*, 14(4), 233–237.
11. Mutua, F. M., Kamaku, P. W., & **Kimani, P. M.** (2020). Ranks and Subdegrees of External Direct Product of  $C_n \times D_r$  Acting on  $X \times Y$ . *International Journal of Algebra*, 14(4), 239–245.
12. **Kimani, P. M.**, & Adicka, D. (2021). Action of  $PGL(2,q)$  on the Cosets of the Centralizer of an Elliptic Element. *Journal of Advances in Mathematics and Computer Science*, 36(7), 11–20.
13. Gechore, D. O., Atitwa, E. B., **Kimani, P.**, & Wanyonyi, M. (2022). Predicting the Number of Tourists In-flow to Kenya Using Seasonal Autoregressive Integrated

- Moving Average Model. *African Journal of Hospitality, Tourism and Leisure*,11(6),1913–1923.
14. Odhiambo, B., Ngari, C., **Kimani, P.**, & Njori, P. (2023). Modelling and Simulation of Competition for Students' Population with Holling Type II Response. *Journal of Mathematics*.
  15. Makena, E., Ngari, C. G., **Kimani, P. M.**, & Kilonzi, J. S. (2024). In-host Density-dependent Model of High-risk HPV Virions, Basal Cells, Lymphocytes T-cells Incorporating Functional Responses. *Heliyon*,10(16),e35038.
  16. Micheni, N. K., Atitwa, E. B., & **Kimani, P. M.** (2025). Prediction of Domestic Value-added Tax in Kenya Using SARIMA and Holt-Winters Methods. *IAENG International Journal of Applied Mathematics*,55(3).

### Conference Presentations

- 16 July 2015 – 2nd International Kenyatta University Mathematics Conference: Presented (i) Application of Marks to Computation of Ranks and Subdegrees of the Symmetric Group Acting on Ordered 4-element and on Ordered 5-element Subsets; (ii) Enumeration of Cyclic Codes over  $GF(13)$ ; (iii) Triples that Behave Like Pythagorean Triples.
- 17–20 June 2019 – 3rd International Kenyatta University Mathematics Conference: Presented 'Subdegrees and Suborbital Graphs of  $PGL(2,q)$  Acting on the Right Cosets of the Subgroup  $C(q+1)$ '.
- 26–27 March 2025 – 8th Annual Virtual International Conference, Kirinyaga University: Presented 'Ranks, Subdegrees, And Suborbital Graphs of the Product Action of Affine Groups'.
- 26 March 2026 – 9th KyU Annual Virtual International Conference: Presented 'On Certain Relation of Sums of Squares and Quartic'.

### Postgraduate Supervision

- M. A. Siahhi – Ranks, Subdegrees, Cycle Indices and Suborbital Graphs Associated with the Product Action of Affine Groups (MSc, KU, 2021).
- N. F. Thinji – Action of  $GL(2,q)$  and  $GL(3,q)$  on Non Zero Vectors Over  $GF(q)$  (MSc, JKUAT, 2022).
- B. O. Odhiambo – Modelling and Simulation of Competition for Students' Population with Holling Type II Response (MSc, UoEM, 2022).
- E. Makena – In-Host Density-Dependent Model Of High-Risk HPV Virions, Basal Cells and Lymphocytes T-Cells Incorporating Functional Responses (MSc, UoEM, 2024).
- N. K. Micheni – Forecasting Domestic Tax Revenues in Kenya Using SARIMA and Holt-Winters Methods (MSc, UoEM, 2025).