CURRICULUM VITAE

PERSONAL DATA

Full Name	Eric Okyere
Date of Birth	16th February 1977
Nationality	Ghanaian
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EDUCATION

C.K Tedam University of Technology and Applied Sciences, Navrongo, Ghana, **2025**
PhD Mathematics

Eindhoven University of Technology (TU/e), Netherlands **2009**
M.Sc. Industrial and Applied Mathematics

Johannes Kepler University, Linz, Austria **2010**
Dipl.-Ing. Industrial Mathematics

African Institute for Mathematical Sciences (AIMS), Cape Town, South Africa **2007**
PgDip in Mathematical Sciences awarded by the **University of the Western Cape (UWC)**

Kwame Nkrumah University of Science and Technology, Kumasi, Ghana **2004**
BSc. Mathematics

RESEARCH INTEREST

Epidemiological Modeling, Mathematical Modeling, Mathematical Biology, Optimal control Theory, Fractional Calculus, Nonlinear dynamical systems, Numerical Methods & Computations.

ACADEMIC HONORS AND SCHOLARSHIPS

European Union Erasmus Mundus Scholarship for a two-year double Master's degree program in Industrial and Applied Mathematics. **2007-2009**

Scholarship by the African Institute for Mathematical Sciences **2006-2007**
Cape Town, South Africa.

BSc. Mathematics **(First Class Honours)**, KNUST, Kumasi, Ghana. **June, 2004**

Association of Mathematics Students (AMS) Awards for academic excellence. **2002-2003**

Listed for academic excellence by the **Dean of College of Science**, KNUST . **2002-2003**

ACADEMIC EXPERIENCE

Senior Lecturer: University of Energy and Natural Resources (UENR), **August 2021-to date**. School of Sciences, Department of Mathematics and Statistics.

Lecturer: University of Energy and Natural Resources (UENR), **August 2018-July, 2021**. School of Sciences, Department of Mathematics and Statistics.

Lecturer: University of Health and Allied Sciences (UHAS), **Sept 2015-July 2018**. School of Basic and Biomedical Sciences, Department of Basic Sciences.

Lecturer: Catholic University College of Ghana (CUCG), **Sept 2010-August 2015**. Faculty of Information, Communication Sciences and Technology (ICST).

Kwame Nkrumah University of Science and Technology
Demonstrator **2005-2006**
Taught Engineering Mathematics (College of Engineering) and Mathematical Methods (Department of Mathematics).

Teaching Assistant **2004-2005**
Taught Mathematical Methods (Department of Mathematics, Department of Chemistry) and Optimization Techniques (Department of Mathematics), KNUST, Kumasi, Ghana.

ACADEMIC LEADERSHIP

Acting Head of Department: Department of Basic Sciences, **March 2017-Feb, 2018**. School of Basic and Biomedical Sciences, University of Health and Allied Sciences.

Examination Officer, School of Sciences, UENR, **2025/2026 Academic year**.

Examination Officer, School of Sciences, UENR, **2024/2025 Academic year**.

Examination Officer, School of Sciences, UENR, **2023/2024 Academic year**.

Examination Officer, School of Sciences, UENR, **2022/2023 Academic year**.

Examination Officer, School of Sciences, UENR, **2021/2022 Academic year**.

Examination Officer, Department of Mathematics and Statistics, UENR, **2020/2021** .

Examination Officer, Department of Mathematics and Statistics, UENR, **2019/2020**.

Chief Invigilator, First Semester Examinations, UENR, **2020/2021**.

Examination Officer, Faculty of ICST, CUCG, **Dec, 2011- Sept, 2013**.

Mathematics resource personnel for recruitment of academic staff, CUCG: **29th July, 2013**.

Mathematics resource personnel for recruitment of academic staff, CUCG: **5th July, 2012**.

Mathematics resource personnel for recruitment of academic staff, CUCG: **15th August, 2011**.

COURSES TAUGHT

Calculus I & II, Linear Algebra for Engineers, Engineering Mathematics II, Numerical Methods for Engineers, Ordinary Differential Equations I, Ordinary Differential Equations II, Advanced Linear Algebra, Partial Differential Equations.

JOURNAL PUBLICATIONS

1. **Okyere, E**., Asamoah Afful, B., Nana-Kyere, S., Agyemang Safo, G., Asante, C., Marri, D., & Acheampong, E. (2026). Modeling the transmission dynamics and optimal control analysis of Mpox infection incorporating vaccination control strategy. *Nonlinear Dynamics*, 114(3), 184. [**Scopus**]

2. **Okyere, E**., Seidu, B., & Nantomah, K. (2025). Deterministic nonlinear epidemiological model for COVID-19 infection with double-dose vaccination. *Scientific African*, e02947. [**Scopus**]

3. Nana-Kyere, S., Kyei Danquah, K., Kofi Hoggar, G., Asamoah, J. K. K., Acheampong, E., & **Okyere, E**. (2025). Dynamical Modelling and Optimal Control of Conjunctivitis Epidemic. *Engineering Reports*, 7(12), e70542. [**Scopus**]

4. Nana-Kyere, S., Kiddy K. Asamoah, J., De-Graft Ankamah, J., **Okyere, E**., Seidu, B., Kwarteng, D., Larbi Ayetey, E., & Kwabena Odum, J. (2025). Mathematical Modeling and Cost-effectiveness Analysis of an $S_eE_eI_eR_e$ Typhoid Fever Model. *Journal of Mathematics*, 2025(1), 1212057. [**Scopus**]

5. Afful, B. A., Safo, G. A., Marri, D., **Okyere, E**., Ohemeng, M. O., & Kessie, J. A. (2025). Deterministic optimal control compartmental model for COVID-19 infection. *Modeling Earth Systems and Environment*, 11(2), 87. [**Scopus**]

6. Tawiah, K., Asosega, K. A., Iddi, S., Opoku, A. A., Abdul, I. W., Ansah, R. K., ... & Adebanji, A. O. (2024). Assessment of neonatal mortality and associated hospital-related factors in healthcare facilities within Sunyani and Sunyani West Municipal Assemblies in Bono Region, Ghana. *Health Services Insights*, 17, 11786329241258836. [**Scopus**]

7. Akuka, P. N., Seidu, B., **Okyere, E**., & Abagna, S. (2024). Fractional-Order Epidemic Model for Measles Infection. *Scientifica*, 2024(1), 8997302. [**Scopus**]

8. Anokye, M., Barnes, B., E. Assabil, S., **Okyere, E**., & A. Konadu, A. (2024). Fractional-Order Delay Cobweb Model and Its Price Dynamics. International Journal of Differential Equations, 2024(1), 1209433. [**Scopus**]

9. Konlan, M., Abassawah Danquah, B., **Okyere, E**., Osman, S., Amenyo Kessie, J., & Kobina Donkoh, E. (2024). Global stability analysis and modelling onchocerciasis transmission dynamics with control measures. *Infection Ecology & Epidemiology*, 14(1), 2347941. [**Scopus**]

10. Liaqat, M. I., & **Okyere, E**. (2023). Comparative Analysis of the Time-Fractional Black–Scholes Option Pricing Equations (BSOPE) by the Laplace Residual Power Series Method (LRPSM). *Journal of Mathematics*, 2023. Article ID 6092283, 18 pages, 2023. https://doi.org/10.1155/2023 [**Scopus**]

11. Adongo, D.W., Benneh, C.K., Amekyeh, H., Adedia, D., Tandoh, A., Armah, I.J., Agyen, J.K., **Okyere, E**. & Woode, E. (2023). Correlates of patient satisfaction with pain management at the Ho Teaching Hospital in Ghana: A cross-sectional study. *Scientific African*, 21, p.e01806. [**Scopus**]

12. Opoku, M. O., Wiah, E. N., **Okyere, E**., Sackitey, A. L., Essel, E. K., & Moore, S. E. (2023). Stability Analysis of Caputo Fractional Order Viral Dynamics of Hepatitis B Cellular Infection. *Mathematical and Computational Applications*, 28(1), 24. [**Web of Science**]

13. Asamoah, J. K., Addai, E., Arthur, Y. D., & **Okyere, E**. (2023). A fractional mathematical model for listeriosis infection using two kernels. *Decision Analytics Journal*, 100191. [**Scopus**]

14. Ackora-Prah, J., Seidu, B., & **Okyere, E**., & Asamoah, J. K. (2023). Fractal-Fractional Caputo Maize Streak Virus Disease Model. *Fractal and Fractional*, 7(2), 189.[**Scopus**]

15. Baloba, E. B., Seidu, B., Bornaa, C. S., & **Okyere, E**. (2023). Optimal control and cost-effectiveness analysis of anthrax epidemic model. *Informatics in Medicine Unlocked*, 42, 101355. [**Scopus**]

16. Liaqat, M. I., & **Okyere, E**. (2022). The Fractional Series Solutions for the Conformable Time-Fractional Swift-Hohenberg Equation through the Conformable Shehu Daftardar-Jafari Approach with Comparative Analysis. *Journal of Mathematics*, vol. 2022, Article ID 3295076, 20 pages, 2022. https://doi.org/10.1155/2022/3295076. [**Scopus**]

17. **Okyere, E**., Seidu, B., Nantomah, K., & Asamoah, J. K. K. (2022). Fractal-fractional SIRS epidemic model with temporary immunity using Atangana-Baleanu derivative. *Commun. Math. Biol. Neurosci.*, 2022, Article-ID. 72 [**Scopus**]

18. Asamoah, J. K. K., **Okyere, E**., Yankson, E., Opoku, A. A., Adom-Konadu, A., Acheampong, E., & Arthur, Y. D. (2022). Non-fractional and fractional mathematical analysis and simulations for Q fever. *Chaos, Solitons & Fractals*, 156, 111821. [**Scopus, SCI**]

19. Asosega, K. A., Iddrisu, W. A., Tawiah, K., Opoku, A. A., & **Okyere, E**.,. (2022). Comparing Bayesian and Maximum Likelihood Methods in Structural Equation Modelling of University Student Satisfaction: An Empirical Analysis. *Education Research International*, vol. 2022, Article ID 3665669, 12 pages, 2022. https://doi.org/10.1155/2022/3665669. [**Scopus**]

20. Acheampong, E., **Okyere, E**., Iddi, S., Bonney, J. H., Asamoah, J. K. K., Wattis, J. A., & Gomes, R. L. (2022). Mathematical modelling of earlier stages of COVID-19 transmission dynamics in Ghana. . *Results in Physics*, 34, 105193. [**Scopus, SCI**]

21. Asamoah, J.K.K., **Okyere, E**., Abidemi, A., Moore, S.E., Sun, G.Q., Jin, Z., Acheampong, E. & Gordon, J.F. (2022). Optimal control and comprehensive cost-effectiveness analysis for COVID-19. *Results in Physics*,33, 105177. [**Scopus, SCI**]

22. Moore, S. E., & Okyere, E. (2022). Controlling the transmission dynamics of covid-19. *Commun. Math. Biol. Neurosci.*, 2022, Article ID 6. [**Scopus**]

23. Akindeinde, S. O., **Okyere, E**., Adewumi, A. O., Lebelo, R. S., Fabelurin, O. O., & Moore, S. E. (2022). Caputo fractional-order SEIRP model for COVID-19 Pandemic. *Alexandria Engineering Journal*, 61(1), 829-845. [**Science Citation Index Expanded**]

24. Asamoah, J. K. K., Yankson, E., **Okyere, E**., Sun, G. Q., Jin, Z., & Jan, R. (2021). Optimal control and cost-effectiveness analysis for dengue fever model with asymptomatic and partial immune individuals. *Results in Physics*, 31, 104919. [**Scopus, SCI**]

25. Rehman, A. U., Singh, R., Abdeljawad, T., **Okyere, E**., & Guran, L. (2021). Modeling, analysis and numerical solution to malaria fractional model with temporary immunity and relapse. *Advances in Difference Equations*, 2021(1), 1-27. [**Scopus**]

26. Ankamah, J. D., **Okyere, E**., Appiah, S. T., & Nana-Kyere, S. (2021). Nonlinear dynamics of COVID-19 SEIR infection model with optimal control analysis. *Commun. Math. Biol.*

Neurosci., 2021, Article-ID 13. [**Scopus**]

27. Asamoah, J. K. K., Jin, Z., Sun, G. Q., Seidu, B., Yankson, E., Abidemi, A., Oduro, F.T., Moore, S.E. & **Okyere, E**. (2021). Sensitivity assessment and optimal economic evaluation of a new COVID-19 compartmental epidemic model with control interventions. *Chaos, Solitons & Fractals*, 146, 110885. [**Scopus, SCI**]

28. **Okyere, E**., Olaniyi, S., & Bonyah, E. (2020). Analysis of Zika virus dynamics with sexual transmission route using multiple optimal controls. *Scientific African*, 9, e00532. [**Scopus**]

29. **Okyere, E**., De-Graft Ankamah, J., Hunkpe, A. K., & Mensah, D. (2020). Deterministic epidemic models for ebola infection with time-dependent controls. *Discrete Dynamics in Nature and Society*, 2020, Article ID 2823816, 12 pages. [**Scopus**]

30. **Okyere, E**., Ackora-Prah, J., & Oduro, F.T. (2020). A Caputo based SIRS and SIS fractional order models with standard incidence rate and varying population. *Commun. Math. Biol. Neurosci.*, 2020, Article-ID 60. [**Scopus**]

31. Nana-Kyere, S., **Okyere, E**., & Ankamah, J. D. G. (2020). Compartmental SEIRW COVID-19 optimal control model. *Commun. Math. Biol. Neurosci.*, 2020, Article-ID 87. [**Scopus**]

32. S. Nana-Kyere, J. Ackora-Prah, **E. Okyere**, S. Marmah, T. Afram (2017). Hepatitis B Optimal Control Model with Vertical Transmission. *Applied Mathematics* , 7 (1), 5-13.

33. **Eric Okyere**, Francis Tabi Oduro, Samuel Kwame Amponsah, Isaac Kwame Dontwi and Nana Kena Frempong (2016). Fractional Order SIR Model With Constant Population. *British Journal of Mathematics and Computer Science* . 14(2): 1-12, DOI: 10.9734/BJMCS/2016/23017

34. Sacrifice Nana-Kyere, Glory Kofi Hogar, **Eric Okyere**, Seth N. Marmah, Justice Kwame Appati, Obuobi Darko Victor. (2016). A Qualitative Analysis of Neisseria Gonorrhea Disease with Treatment Effect. *Applied Mathematics*, 6(1): 6-15, DOI:10.5923/j.am.20160601.02.

35. Saheed Ojo Akindeinde, **Eric Okyere** (2016). New Analytic Technique for the Solution of N^{th} Order Nonlinear Two-point Boundary Value Problems. *British Journal of Mathematics and Computer Science* . 15(2): 1-11, DOI: 10.9734/BJMCS/2016/24365.

36. David Adedia, Atinuke Adebanji, **Eric Okyere**, James Kwaku Agyen (2016). Leverages, Outliers and the performance of robust regression estimators. *British Journal of Mathematics and Computer Science* . 15(3): 1-14, DOI: 10.9734/BJMCS/2016/24281.

37. **Eric Okyere**, Nana-Kyere Sacrifice, Nana Kena Frempong, Saheed Ojo Akindeinde, Johnson De-Graft Ankamah, David Adedia. James Kwaku Agyen (2016). On Some Compartmental Models for Ebola Disease. *Journal of Mathematical Theory and Modeling.* Vol.6, No.2, pp.34-49.

38. Nana-Kyere Sacrifice, **Eric Okyere**, Nana Kena Frempong, Saheed Ojo Akindeinde, Johnson De-Graft Ankamah, James Kwaku Agyen, David Adedia. (2015). An SITR Analysis of Treatment Model of Hepatitis B Epidemic. *Journal of Mathematical Theory and Modeling.* Vol.5, No.13, pp. 120-132.

39. Acheampong, E., Aerts, M., Hens, N., **Okyere, E.** and Boyetey, D. (2014). On A Model For The Cross Protection Of Two Infectious Diseases. *Journal of Mathematical Theory and Modeling.*

Vol. 4, No. 2, PP. 73-85.

40. Acheampong, E., Boyetey, D. B., Gyimah, F. O. and **Okyere, E.** (2013). Assessing Student Satisfaction: An Application of Logistic Regression Analysis to Methodist University College Ghana (MUCG) Data. *Open Science Repository Mathematics, Online (open-access)*, e23050464.
doi:10.7392/openaccess.23050464.

SCHOLARLY PROFILES

Scopus: https://www.scopus.com/authid/detail.uri?authorId=57218441265

Web of Science: https://www.webofscience.com/wos/author/record/AAS-1032-2021

Google Scholar: https://scholar.google.com/citations?user=v6KdDXYAAAAJ&hl=en

ORCID: https://orcid.org/my-orcid?orcid=0000-0003-3768-1754

Researchgate: https://www.researchgate.net/profile/Eric-Okyere

PEER-REVIEWED EXPERIENCE

I have reviewed for several international journals in reputable publishers:
Optimal Control Applications and Methods **(Wiley)**;
SN Operations Research Forum **(Springer Nature)**;
Mathematics and computers in simulation **(Elsevier)**;
Scientific Reports **(Springer Nature)**;
Complexity **(Hindawi)**;
Mathematical Biosciences **(Elsevier)**;
Healthcare analytics **(Elsevier)**;
Heliyon **(Elsevier)**;
International Journal of Biomathematics **(World Scientific)**;
Physica Scripta **(IOP)**;
Frontiers in Applied Mathematics and Statistics **(Frontiers)**;
Electronic Research Archive **(AIMS Press)**;
Mathematics **(MDPI)**;
Computer methods in biomechanics and biomedical engineering **(Taylor & Francis)**;
BMC infectious diseases **(BMC, Springer)**;
Clinical epidemiology **(Dove Press)**.

COMPUTER SKILLS

Matlab, Mathematica, Octave, LaTeX, MS Office, and Python Programming.

LANGUAGE SKILLS

Fluent in English and Twi.

HOBBIES

Table Tennis and Football.

REFERENCES

Prof. Sampson Takyi Appiah
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Department of Mathematics & Statistics
Sunyani, Ghana
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Prof. Baba Seidu
School of Mathematical Sciences
Department of Mathematics
Navrongo, Ghana
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Prof. Kwara Nantomah
School of Mathematical Sciences
Department of Mathematics
Navrongo, Ghana

Cell: +233-208298678

E-Mail: knantomah@cktutas.edu.gh

Prof. I. K. Dontwi
College of Science
Faculty of Physical Sciences
Department of Mathematics
KNUST, Kumasi, Ghana

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Prof. Nana Kena Frempong
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Faculty of Physical Sciences
Department of Statistics & Actuarial Science
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