

CURRICULUM VITAE of
APPIAH, SAMPSON TAKYI PhD (UMaT, GHANA), MSc (KNUST, GHANA), BSc (KNUST, GHANA)

A. PERSONAL INFORMATION:

Surname:	Appiah	Other Names:	Sampson Takyi
Sex:	Male	Nationality:	Ghanaian
Place of Birth:	Kumasi		

Languages Spoken:

English: Excellent written and oral skills Twi: Excellent written and oral skills

Address

Department of Mathematics and Statistics,
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Objective

To utilize the skills acquired as a Senior Lecturer and take up challenging opportunities to learn and improve upon my skills and to empower my students to demonstrate and value the knowledge they acquire.

B. ACADEMIC DEGREES EARNED AND UNIVERSITIES ATTENDED:

- i. PhD Mathematics, University of Mines and Technology, UMaT, Tarkwa, Ghana, 2015
- ii. MSc. Mathematics, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana, 2006
- iii. BSc Mathematics, KNUST, Kumasi, Ghana, 2002

C. MEMBERSHIP OF SCIENTIFIC INSTITUTIONS

- i. Member, National Association of Mathematicians, 2019 to date.
- ii. Member, NIMS Ghana 2017 to date.
- iii. Member – Ghana Mathematics Society, 2008 to date.

D. TEACHING (PROFESSIONAL) AND RESEARCH EXPERIENCE

- i. **Associate Professor**, University of Energy and Natural Resources, Sunyani, Ghana, 2024 to date.
- ii. **Senior Lecturer**, University of Energy and Natural Resources, Sunyani, Ghana, 2018 to 2024.
- iii. **Senior Lecturer**, Department of Mathematics Sciences, UMaT, Tarkwa, 2015 to 2018.
- iv. **Lecturer**, University of Mines and Technology (UMaT), Tarkwa, Ghana, 2007 to 2015.
- v. **Facilitator**, KNUST Institute of Distance Learning, Tarkwa Center, 2011 to 2015
- vi. **Lecturer**, Sunyani Polytechnic, 2007
- vii. **Teacher**, Techiman Secondary School, 2004-2007

Subjects Taught

Table 1 Courses Taught

Undergraduate Level		
Course Code	Course Title	Academic Year (s)
MATH 114	Engineering Mathematics II	2018/2019
STAT 086	Medical Statistics	2018 to date
MATH 116	Discrete Mathematics and Theory of Proof	2018 to date
MATH 112	Introduction to Discrete Mathematics	2019/2020
STAT 304	Time Series Analysis and Forecasting	2018 to 2020
MATH 211	History of Mathematics	2018 to date
MATH 407	Application Development for Mathematics	2018 to date
MATH 409	Game Theory	2019 to date
MATH 065	Calculus	2019/2020
MA 375	Regression Analysis	2015/2016
MA 277	Probability and Statistics II	2015/2016
MA 473	Sample Survey Theory	2015 to 2018
MA 278	Physics I (Theoretical Mechanics)	2008 to 2018
MA 371	Physics II (Continuum Mechanics)	2008 to 2018
MA 274	Ordinary Differential Equations	2009 to 2018
GM 153	Linear Algebra and Trigonometry	2007 – 2009

Postgraduate Level		
STAT 764	Generalized Linear Models	2018/2019
MATH 757	Numerical Analysis	2018 to date
MATH 763	Research Methods and Mathematics Writing	2018 to 2020
PE 571	Applied Computational Methods	2017/2018
MA 525	Design and Analysis of Experiment	2015/2016
MA 505	Operations Research	2015 to 2017
MA 506	Advanced Probability and Statistics	2015 to 2018
MA 528	Sample Survey Theory	2015 to 2017
MA 527	Application of Numerical Analysis to ODE	2015 to 2018

Supervision of Students Research Project /Thesis

I have successfully supervised a total of 51 undergraduate research projects,15 postgraduate thesis works, and one (1) PhD thesis works.

External/Internal Examination: twenty-one (21) PhD and Thirty-six (36) MPhil theses.

E. PUBLICATIONS

- i. Abdul-Karim I., **Appiah, S. T.**, Afriyie J. O., and Abubakar S. (2026), “Spatial and spatiotemporal pattern of stroke relative risk in Ghana using Bayesian modelling approach”, *Journal of Stroke and Cerebrovascular Diseases*, Vol. 35, pp. 1 – 13, <https://doi.org/10.1016/j.jstrokecerebrovasdis.2026.108567>
- ii. Kumi, W., Otoo, H., Kwofie C., and **Appiah, S. T.**, (2026), “Risk Measures Associated With Automobile Insurance Claim Losses With an Underlying Probabilistic Mixture Distribution”, *International Journal of Mathematics and Mathematical Sciences*, pp. 1 – 9. <https://doi.org/10.1155/ijmm/5018457>
- iii. Kwofie, C., Kumi, W., Otoo, H., **Appiah, S. T.**, and E. Ocran (2025) “Risk Measures Associated With Insurance Losses in Ghana,” *Journal of Operational Risk*, Vol. 20, No. 2, pp. 1 – 15. DOI: 10.21314/JOP.2024.017
- iv. Ansah, R. K., Tackie, S., Asosega, K. A., Kassim, T., Abassawah, D. B., **Appiah, S. T.**, Rhodaine Abena Twum, R. A., and Omane-Adjepong, M. (2025), “Untangling choices: how awareness and socio-economic status shape malaria vaccination decisions among Ghanaian women”, *Malaria Journal*, pp. 1 – 10. <https://doi.org/10.1186/s12936-025-05613-1>
- v. Otoo, D., Adjei, B. A. and **Appiah, S. T.** (2023) “A mixed-integer quadratic programming transportation problem”, *International Journal Operational Research*, Vol. 48, No. 3, pp.338–356.
- vi. Kassim, T., Asosega, A. K., Ansah, R. k., **Appiah, S. T.**, Otoo, D., Aponye, I. A., Tinbil, T., and Isaac Mensah Addai, I. M. (2023), “Confirmed Malaria Cases in Children under Five Years: The Influence of Suspected Cases, Tested Cases, and Climatic Conditions”, *Hindawi Health & Social Care in the Community*, Volume 2023, Article ID 8469372, pp. 1-8.
- vii. Otoo, H., **Appiah, S. T.**, and Nsiah, A. (2022), Analytical Solution of the Transmission Dynamics of Diarrhea using Homotopy Perturbation Method, *European Journal of Engineering and Technology Research*, Vol. 7, No. 6, pp. 132-137, pp. 161-168, ISSN: 2736-576X.
- viii. Ankamah, J. D., Okyere, E., **Appiah, S. T.** And Nana-Kyere, S. (2021), “Nonlinear Dynamics of Covid-19 Seir Infection Model with Optimal Control Analysis”, *Communications in Mathematical Biology and Neuroscience*, 2021:13, pp. 1-19, ISSN: 2052-2541
- ix. **Appiah, S. T.**, Otoo, D. and Adjei, B.A. (2020) “A Multi-Vehicle, Multi-Factory Assignment Problem: A Case of Coca-Cola Bottling Company at Ahinsan and Spintex-Ghana”, *American Journal of Operations Research*, Vol. 10, No. 5, pp. 163-172. ISSN: 2160-8849
- x. Iddrisu, W.A., **Appiah, S.T.**, Abdul-Mumin, K. and Ab-dul-Samed, A.-R. (2020) “Modelling the Im-pact and Effects of Climatic Variability on Electricity Energy Consumption in the Yen-di Municipality of Ghana”, *Open Journal of Energy Efficiency*, Vol. 9, pp. 1-13, ISSN: 2169-2645.
- xi. Otoo, H., **Appiah, S. T.**, Buabeng, A. (2020), “Testing causality and cointegration between saving and investment in Ghana”, *European Journal of Engineering Research and Science*, Vol. 5, No. 2, pp. 132-137, ISSN: 2506-8016.

- xii. Otoo, H, **Appiah, S. T.**, Asiedu E. L. (2020), “A Mathematical Model of the Transmission Dynamics of Chikungunya Fever”, *International Journal of Scientific and Research Publications*, Vol. 10, No. 2, pp. 748-759.
- xiii. Otoo, H, **Appiah, S. T.**, Apodei, M. (2019), “Minimising the Transportation Cost of an Oil Mill Company”, *International Journal of Science and Research*, Vol. 8, No. 12, pp. 1417-1425. ISSN: 2319-7064
- xiv. Otoo, H, **Appiah, S. T.** and Arhinful, D. (2019), “Stability and Sensitivity Analysis of Yellow Fever Dynamics”, *European Journal of Engineering Research and Science*, Vol. 4, No. 12, pp. 159-166, ISSN: 2506-8016
- xv. **Appiah, S. T.**, Adjei, A. A., Otoo, D., Okyere, E. (2019), “Testing the Robustness of Linear Programming Using a Diet Problem on a Multi-Shop System”, *Journal of Advances in Mathematics and Computer Science*, Vol. 34, No. 5, pp. 1 – 12, ISSN: 2456-9968.
- xvi. **Appiah, S. T.**, Buabeng, A., Odoi, B. (2018), “Comparative Study of Mathematical Models for Ghana’s Gold Production”, *Ghana Mining Journal*, Vol. 18, No. 1, pp. 78 - 83.
- xvii. **Appiah, S. T.**, Buabeng, A., Dumakor-Dupey, N. K. (2018), “Multivariate Analysis of the Effect of Climate Conditions on Gold Production in Ghana”, *Ghana Mining Journal*, Vol. 18, No. 1, pp. 72 - 77.
- xviii. Agyarko, K., **Appiah, S. T.**, Simons, A. (2018), ‘Application of Generalized Estimating Equations to Non-Life Insurance Claims Reserve in Ghana -A Case Study’, *International Journal of Sciences*, Vol. 42, No. 1, pp. 72-80.
- xix. **Appiah, S. T.**, Dontwi, I. K. and Amegbey, N. A. (2017), ‘Comparing Mathematical Models for the Rate of Clot Dissolution during Laminar and Turbulent Flows using Reynolds Number’, *Ghana Journal of Technology*, Vol. 1, No. 2, pp. 27 - 31.
- xx. **Appiah, S. T.**, Dontwi, I. K. and Amegbey, N. A. (2015), “Applications of Mathematical Models for Blood Flow in a Non-Occluded Artery/Vein of the Cardiovascular System”, *Aryabhata Journal of Mathematics and Informatics*, Vol. 7, NO. 1, pp. 9-20.
- xxi. **Appiah, S. T.**, Otoo, H., Nabubie, I. B. (2015), “Times Series Analysis of Malaria Cases in Ejisu- Juaben Municipality”, *International Journal of Scientific and Technology Research*, Vol. 4, No. 6, pp. 220-226.
- xxii. Otoo, H., **Appiah, S. T.**, Wiah, E. N. (2015), “Regression and Time Series Analysis of Loan Default at Minescho Cooperative Credit Union, Tarkwa”, *International Journal of Scientific and Technology Research*, Vol. 4, No. 8, pp. 187-194.
- xxiii. **Appiah, S. T.** (2013), “Using Mathematical Relations to Deduce the Rate of Clot Dissolution in the Human Circulatory System”, *International Journal of Mathematical Archive*, Vol. 4, No. 7, pp. 221-233.
- xxiv. **Appiah, S. T.**, Wiah, E. N., Brew, L. and Kwateng, F. (2012) “Comparative Study of Mathematical Models for Population Projection “, *2nd UMaT Biennial International Mining and Mineral Conference*, pp. 359-365.
- xxv. **Appiah, T. S.**, Ofori T. Ackah, B. and Nyarko F, “Analysis of Road Accident Deaths in Ghana, Application of Times Series and Regression”, *2nd UMaT Biennial International Mining and Mineral Conference*, pp. 377 – 385.
- xxvi. **Appiah, S. T.** and I.A. Adetunde, Dontwi, I.K, (2011) “Mathematical Model of Blood Clot in the Human Cardiovascular System”, *International Journal of Research in Biochemistry and Biophysics*, 1(2): 9-16
- xxvii. **Appiah, S. T.** and Adetunde, I. A. (2011) “Forecasting Exchange Rate Between the Ghana Cedi and the US Dollar using Time Series Analysis”, *Current Research Journal of Economic Theory* 3(2): 76-83,

- xxviii. Doku, A. K., Appiah kubi, B., **Appiah, S. T. (2011)** Modeling the Effects of Oligopolistic Behaviour of MTN and Tigo in the Telecommunication Markets: The Ghanaian Experience. *Journal of Emerging Trends in Economics and Management Sciences* 2(4): 238-242
- xxix. Adetunde I. A., Kodua M., Amporful J. K., Dwummoh-Sarpong A., Nyarko P. K., Ennin C. C., **Appiah S. T.**, Oladejo N. (2009), "Epidemiology of Chamydia Bacterial Infection-A Review", *Journal of American Sciences; Volume 5-number 4, pp 55-64. ISSN:1545-1003.*
- xxx. Dontwi, I.K., **Appiah, S. T.**, Boateng, F. O., Asiedu-Addo, S. K. (2006). "A Mathematical Model to Investigate Gain-Induced Oscillation in the Human Cardiovascular System". *African Journal of Educational Studies in Mathematics and Sciences* Vol 4, pp 77-91.

F. CONFERENCES ATTENDED

- i. The 20th Biennial Computational Techniques and Applications Conference, UNSW Sydney, Australia, August 30, 2020 to September 2, 2020.
- ii. The Eighth Pacific Rim Conference in Mathematics, hosted by University of California, Berkeley, August 3, 2020 to August 11, 2020.
- iii. Accelerated action and transformative pathways: realizing the decade of action and delivery for sustainable development, UNITAR New York Office, Webinar, 7th to 16th July, 2020.
- iv. 4rd UMaT Biennial International Conference on Innovations in Mining and Mineral Processing, Expanding the frontiers of Mining Technology, Tarkwa, Ghana from August 3, 2020 to August 6, 2016.
- v. 1st NIMS Ghana Conference on Modelling Industrial Problems, 28th November to 2nd December, 2017.
- vi. 3rd UMaT Biennial International Conference on Innovations in Mining and Mineral Processing in Tarkwa, Ghana from 25th to 28th July, 2014.
- vii. 2nd UMaT Biennial International Conference on Innovations in Mining and Mineral Processing in Tarkwa, Ghana from 25th to 28th July, 2012.
- viii. 1st University of Mines and Technology (UMaT) International Mining and Mineral Conference. Theme: Expanding the Frontiers of Mining Technology. (4th to 7th August, 2010), Tarkwa, Ghana.
- ix. 10th Bi- Annual Sub-Saharan African Network (SUSAN) Conference of the International Biometric Society (IBS). Theme: Achieving the Millennium Development Goals, The Role of the Biometrics. 2007, KNUST, Kumasi, Ghana.
- x. Annual Conference of The Ghana Mathematics Society. 2008, GNAT Hall, Accra, Ghana.

G. SEMINAR AND WORKSHOPS ATTENDED

- i. The Book Publishing Process: An Elsevier Author Workshop, Webinar, 2nd June, 2020.
- ii. Workshop on the theme: "Growing Together as a Department: The Role of Each Member", 26th November, 2019, Mathematics and Statistics Department, UENR, Sunyani.
- iii. Workshop on Academic Leadership, 3rd to 4th October, 2019, UENR, Sunyani.
- iv. Workshop on Enhancing Research Support at the University, 2nd May, 2018, UMaT, Tarkwa.

- v. Seminar on Financial Management and Internal Audit Unit Operating System in the University, 1st February, 2018, UMaT, Tarkwa.
- vi. Workshop on Creating Learning Materials for open and Distance Learning (ODL), 1st – 3rd November, 2017, UMaT, Tarkwa.
- vii. Seminar on Format for the Writing of Theses, Project Work and Papers, November, 2017, UMaT, Tarkwa.
- viii. Seminar on E-Resources for Teaching, Learning and Research, October, 2017, UMaT, Tarkwa.
- ix. Seminar for Heads of Departments on Processing of Vision Statement Form, September, 2017, UMaT, Tarkwa.
- x. Seminar on Graduate Student Research Development and Mentoring: A Personal Perspective and Course Development, August, 2017, UMaT, Tarkwa.
- xi. Seminar on "Discussions on Increasing UMaT's Research Visibility", July, 2017, UMaT, Tarkwa.
- xii. Senior Academic Leadership Training Programme (SALT), Organised by the National Council for Tertiary Education (NCTE), 1st – 4th November, 2015, Accra.
- xiii. Workshop on Career Progression and Promotion Issues. Organised by the UMaT Planning and Quality Assurance Unit of Ghana. March 8, 2014, UMaT, Tarkwa, Ghana.
- xiv. Seminar on Role Play in Administration/Management. Organised by the UMaT Planning and Quality Assurance Unit of Ghana. January 31, 2014, UMaT, Tarkwa, Ghana.
- xv. Seminar on Research Proposal writing, Organised by the UMaT Planning and Quality Assurance Unit, 2013.
- xvi. Seminar on University Teaching and Examinations. Organised by the UMaT Planning and Quality Assurance Unit of Ghana. 2007, UMaT, Tarkwa, Ghana.

H. SERVICE TO COMMUNITY

Since my appointment into the University of Mines and Technology in May 2007, I have served the University community in the following important responsible positions:

i. *Administrative Experience*

S/N	Service	Date
1	Head, Department of Mathematics and Statistics, UENR	Sept., 2019 to Aug., 2021
2	Head, Department of Mathematical Sciences, UmaT	August, 2017 to July, 2018
3	Training Officer, Faculty (School) of Engineering, UmaT	August, 2016 to July, 2017
4	Training Officer, Department of Mathematical Sciences, UMaT, Tarkwa	August, 2010 to July, 2011
5	Examination Officer, Department of Mathematical Sciences, UMaT, Tarkwa	August 2009 to July 2010

ii. *Membership of Statutory Committees*

S/N	Service	Date
1	Member, Departmental Board, UENR	2018 to date
2	Member, School of Science Board, UENR	2019 to 2021, 2025 to date
3	Chief Invigilator	May, 2025
4	Departmental Representative to Academic Board, UENR	September, 2023 to date
5	Member, School of Science Postgraduate Committee	July, 2020 to 2021

6	Member, Graduate School Representative on ICT Committee, UENR	September, 2019 to August, 2020
7	Departmental Representative to Academic Board, UENR	September, 2018
8	Member, Ghana Universities Staff Superannuation Scheme (GUSSS) Management Committee, UmaT	January, 2016 to December, 2018
9	Scrutineer, Election of a Non-Professorial Member on Council, Umat	October, 2017
10	Mathematics Department Representative, Faculty of Engineering Board, UMaT, Tarkwa	August, 2012 to July, 2016
11	Scrutineer, Election of Pro Vice Chancellor, UMaT, Tarkwa	November, 2010

iii. Membership of Non-Statutory/Ad-hoc Committees

S/N	Service	Date
1	Chairman, Committee on Digitizing of Human Resource Forms, UENR.	October, 2020
2	Member, Organizing Committee for One-Day Retreat, School of Sciences, UENR.	March, 2021
3	Member, Committee to develop Strategic Plan for School of Sciences, UENR.	April, 2021
4	Member, Curriculum Documents Review Committee for NCTE and NAB	February, 2020
5	Member, Committee on Amendment of Grading System for Resit Examination	September, 2019
6	Chairman, Committee to streamline various programmes of the Department so that it would be easier for students to switch between the programmes.	April, 2019
7	Member, Committee on Programme Structures and Course Syllabi of BSc Financial Mathematics and BSc Data Science, UmaT	March, 2017
8	Chairman, Robbery Investigations Committee, UmaT formed by Registrar	April, 2017
9	Chairman, Investigations Committee on the assault on the Head of Security Unit, UmaT	June, 2017
10	Chairman, Investigations Committee of the Security Unit	November, 2017
11	Member, Board of Survey, UmaT	August, 2016
12	Member, Committee on Five Years Development Plan for Mathematics Department	March, 2015
13	Member, Committee on Loss of CCTV Monitor Cable	May, 2015
14	Undergraduate Curriculum Review Committee, Mathematics Department, UMaT, Tarkwa	April, 2014
15	Committee to Review the MSc Programme of Mathematics Department, UMaT, Tarkwa	March, 2014
16	Member, Committee to Review Tax Deductions of UTAG Members, UMaT, Tarkwa	May, 2012

iv. Service to National/ International Community

S/N	Service	Date
1	External Examiner, KNUST	2020 to date
2	External Examiner, UDS	2019 to date
	External Examiner, CKT	2023 to date
3	Moderator, STU, Sunyani	2020 to date
4	Sectional Editor, Ghana Mining Journal and Ghana Journal of Technology	January, 2017 to July, 2018
5	Member, Committee to Review Programme Structure and Course Syllabuses for Ghana Telecom University College	January, 2017
6	Moderator, Post-Moderation and Pre-Moderation of Examination Questions, Ashesi University College	December, 2017
7	Member, National Institute of Mathematical Sciences (NIMS) Management Board	August, 2017 to date
8	Reviewer, International Journal of Tropical Disease and Health	2020
9	Member, International Biometric Society (IBS)	July, 2020

I. HOBBIES

Teaching and Learning, Counseling people, and Playing Chess.

J. REFEREE:

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