

CURRICULUM VITAE



PERSONAL INFORMATION

Name: Dr. Francis Odhiambo Akwenda, PhD.

Gender: Male

Date of birth: 28th March 1988

Citizenship: Kenyan

Marital status: Married

Religion: Christian

Contact address: Jaramogi Oginga Odinga University of Science and Technology
Department of Pure and Applied Mathematics
P.O BOX 210 – 40601, Bondo, Kenya.

Cell number: +254716525685/+254740429828

Email address: francisakwenda@gmail.com
fakwenda@jooust.ac.ke

Languages spoken: English, Kiswahili, and Luo

EDUCATIONAL BACKGROUND

1. **2021 - 2024:** Jaramogi Oginga Odinga University of Science and Technology (JOUST)
Doctor of philosophy (PhD) in **Applied mathematics.**

***Thesis title:** Dynamical Analysis of Four Species Food Web System with Prey Refuge and
Holling type III Functional Response.*

2. **2018 - 2021:** Jaramogi Oginga Odinga University of Science and Technology (JOUST), Master of Science (Msc) in **Applied Mathematics**

***Thesis title:** Lie Symmetry Analysis of Modified Diffusive Predator- prey Competition System of Equations.*

3. **2010 -2014:** Maseno University, Bachelor of Education (Science with IT), Mathematics and Chemistry, **1st Class Honours**

4. **2005-2008:** St. Charles Humwend Secondary School, KCSE

5. **1995-2004:** Humwend Primary School.

WORK EXPERIENCE

1. **1th April, 2025 – Date:** Lecturer, Jaramogi Oginga Odinga University of Science and Technology, Bondo, Kenya

2. **6th November, 2024 – 30th March 2024:** Tutorial Fellow, Jaramogi Oginga Odinga University of Science and Technology, Bondo, Kenya

3. **2015 – October 2024:** TSC Secondary Teacher I (Mathematics and Chemistry), St. Francis Rang'ala Girls High School

4. **September 2014 – April 2015:** Trained Teacher (Mathematics and Chemistry) St. Nicholas Hafumbre Secondary School

5. **May 2014 – August 2014:** Teaching Practice, Odienea Mixed Secondary School

APPOINTMENTS, DUTIES AND RESPONSIBILITIES

1. **February 2025 – Date:** Departmental Examination Coordinator, Department of Pure and Applied Mathematics, Jaramogi Oginga Odinga University of Science and Technology

2. **Jan. 2024 – Oct. 2024:** Class teacher, F3 Central, St. Francis Rang'ala Girls High School

3. **Mar. 2019 – Oct. 2024:** Head of Examination Results Analysis, St. Francis Rang'ala Girls

4. **2018 – Oct. 2024:** Head of Mathematics Department, St. Francis Rang'ala Girls.

5. **May 2018 – Oct. 2024:** Preps monitoring team, St. Francis Rang'ala Girls High School

6. **July 2017 – October 2024:** Member of the Career Department, St. Francis Rang'ala Girls

7. **May 2021 – August 2021:** Team leader Siaya county T.S.C Remote learning methodologies virtual training at the county and the sub-county level

8. **January 2016 – December 2019:** Class teacher (F₁ – F₄ Galaxy), St. Francis Rang'ala Girls High School

SEMINARS, WORKSHOPS AND TRAINING

1. **April 10th 2025:** Examination Administration and Management Processes, JOOUST main campus
2. **February 11th 2025:** Dialogue on Building Resilient Internal Quality Assurance Systems Through Examination Processing and Award of Qualifications, Virtual workshop
3. **August 13th – 19th 2023:** The Kenya National Examinations Council, Examiner's training, Mathematics paper 2.
4. **May 2021 – August 2021:** TSC Remote Learning Methodologies (R.L.M) virtual training (master trainer) at the national, regional, county, and sub- county levels.
5. **February 25th – 27th 2021:** Zonal TPAD online system and covid-19 sensitization Training (Sikalame Zone – Ugunja sub-county)
6. **January 29th 2020:** #Agec20- KE short course in Teaching Entrepreneurial Mindset to learners at high school level.
7. **April 23rd – 27th 2019:** SMASE secondary county TPD 2019 Course

TPD course content

- 21st century learner's skills
 - Competency Based Curriculum (CBC)
 - Concept of learner centred strategies (ASEI- PDSI), Project Based Learning, CT Integration in teaching and learning, Inquiry Based Learning (IBL)
 - HIV and AID's – stigma and discrimination
8. **February 8th 2017:** Lake Region secondary schools Science and Engineering Fair Workshop

Contents of the workshop

- Project selection, development, and presentation
 - The project write-up, judging techniques, science and engineering fair marking scheme
9. **April 27th - 1st May 2015:** County Inset Course (SMASE Secondary Programme County Inset Course 2015)

Content covered

- Developing manipulative, observation and recording skills for learner's growth
- Encouraging, capturing, and using learner's ideas in teaching mathematics and science topics.

PAPERS PRESENTED IN SEMINARS AND CONFERENCES ATTENDED

1. **23rd -24th March 2022:** Kirinyaga University (Kyu) 5th Annual International Virtual Conference 2022.

Title: *Formulation of four species food web system with prey refuge and Holling type III Functional Response.*

ARTICLES/ PAPERS REVIEWED

Manuscript Title: **Stability Analysis of the Chaotic Reverse Butterfly-Shaped Dynamical System Using Hurwitz Polynomials.** Manuscript Number: **Ms_JAMCS_123582;** *Journal of Advances in Mathematics and Computer Science.* Date of submission: **12 September 2024**
Remarks: Review comments accepted and APPROVED.

PUBLICATIONS

1. **Odhiambo Francis.** Dynamical Analysis of Time Delay Effects on the Stability of a Harvested Predator-Prey System with a General Holling Type Response. *Results in Control and Optimization (Elsevier)*: Manuscript Number: RICO-D-25-00139, Date submitted May – 2025 (**Paper under review**)
2. Benard O., Omoke P., Onyango A., Oburu J., **Odhiambo F.**, Kangogo W. Asymptoticity of Measure Theoretic Operators and Persistent Homology in Artificial Intelligence. *International Journal of Open Problems in Computer Science and Mathematics*, 18(3), (2025), 40-46
3. **Odhiambo Francis**, Aminer Titus, Benard Okelo, Julius Manyala. Dynamical Analysis of Prey Refuge Effects on the Stability of Holling Type III Four-species Predator-Prey System, *Results in Control and Optimization (Elsevier)*: 14(2024), 100390 <https://doi.org/10.1016/j.rico.2024.100390>
4. **Odhiambo Francis**, Aminer Titus, Benard Okelo, Julius Manyala. Formulation of a Four-Species Food Web System with Prey Refuge and Holling Type III Functional Response, *World Wide Journal of Multidisciplinary Research and Development*, 9(01): (2023), 87 – 90.
5. N. B. Okelo, **Francis Odhiambo** and Jeffar Oburu, On Sharp Estimates of Coefficients for Polynomials in Norm-Attainable Classes, *Pan-American Journal of Mathematics*, 1 (2022), 1-6. <https://doi.org/10.28919/cpr-pajm/1-1>
6. **Odhiambo F.**, Aminer T. J. O and Okaya M. E. Lie Symmetry Analysis of Modified Diffusive Predator- Prey Competition System of Equations. *International Journal of Multidisciplinary Sciences and Engineering*, Vol. 11, No. 2, (2020), 1 – 5.

MEMBERSHIP IN PROFESSIONAL BODIES AND SOCIETIES

1. Mathematics Association of Kenya (MAK)

POSTGRADUATE SUPERVISION

1. Magdaline Akoth

Thesis Title: Numerical Solution of Fourth Order Ordinary Differential Equation Using Liouvillian Approach

Program: Msc in Applied Mathematics

Institution: Jaramogi Oginga Odinga University of Science and Technology

Status: Continuing (Expected to graduate in October 2026)

2. Ongesa John Asawo

Thesis Title: Dynamical Analysis of Prey-predator Fishery Model with Combined Harvesting, Time Delay and Holling type III Functional Response

Program: Msc in Applied Mathematics

Institution: Jaramogi Oginga Odinga University of Science and Technology

Status: Continuing (Expected to graduate in October 2026)

PROFESSIONAL SERVICES

1. Preparing mathematics and scientific documents using Latex processing package
2. Performing simulations and other mathematical operations using Matlab Computer software.

RESEARCH INTERESTS

- i. Lie symmetry analysis of differential equations
- ii. Dynamical analysis of systems
- iii. Modelling and Simulations using MATLAB Computer Software
- iv. Numerical analysis

SOCIAL INTEREST

- i. Playing football
- ii. Playing badminton
- iii. Listening to music
- iv. Playing piano

REFEREES

1. Prof. Aminer Titus J. O,
P.O BOX 160 – 40607 Ukwala, Kenya
Email: titusaminer@yahoo.com
0720352006

2. Prof. Benard Okelo
P.O BOX 210 – 40601, Bondo, Kenya
Email: bnyaare@yahoo.com
0723397455

3. Prof. Julius Otieno Manyala (PhD)
P. O. Box 210 - 40601, Bondo, Kenya
Email: manyalajo2030@gmail.com | manyalajo@yahoo.com
0725 246 885 | 0733 397 285