Curriculum Vitae

Emmanuel Chinaza Onyegu

PhD Researcher, Mathematics Education
Utah State University
Emma Eccles Jones College of Education and Human Services School of Teacher Education and Leadership
2805 Old Main Hill, Logan, Utah 84322
435-219-7915 | A02454268@usu.edu

EDUCATION

Ph.D. in Education **Expected 2028**
Utah State University, Logan, UT
Specialization in Curriculum & Instruction
Concentration in Mathematics Education & Leadership

M.Sc. in Mathematics **2023**
Federal University of Lafia, Nasarawa State, Nigeria
Specialization in Applied Mathematics; Numerical Analysis

B.Sc. in Science/Mathematics Education **2017**
Nnamdi Azikiwe University, Awka, Anambra State, Nigeria
Major in Mathematics Education
Teaching Certificate: Teachers Registration Council of Nigeria (TRCN)

PROFESSIONAL HISTORY

Graduate Teaching and Research Assistant **2024 - present**

School of Teacher Education and Leadership, Utah State University

- Instructor for Mathematics Education courses.
- Supervision of Pre-Service Teachers.
- Developing Best Intructional Practices in Teaching Mathematics.
- Annotated Bibliography and Manuscript development.
- Writing Research Papers and Developing Research Design.
- Analyzing Large-Scale Data from National Center for Education Statistics (NCES) and Trends in International Mathematics and Science Study.

Visiting Lecturer, Ekiti State University, **2023 – 2024**

Ipere Distance Learning Centre, Lafia

- Taught and provided supervision at undergraduate levels on programs within Faculty of Education deploying appropriate teaching, learning, support, and assessment methods. This includes undertaking marking, assessment, examination, and provision of timely feedback to students.
- Identified areas for revision, improvement, or innovation to meet students and department expectations.

Lecturer, Federal University of Lafia 2019 – 2024

- Taught and provided supervision at undergraduate levels on programs within Faculty of Education deploying appropriate teaching, learning, support, and assessment methods. This includes undertaking marking, assessment, examination, and provision of timely feedback to students.
- Identified areas for revision, improvement, or innovation to meet students and department expectations.
- Developed a range of approaches to teaching and learning which are innovative for the University and subject area which create interest, understanding and enthusiasm amongst students and reflect developing practice elsewhere.
- Collaborated with colleagues to identify and respond to students' needs.
- Engages in subject research to support teaching activities and contribute to research assessments, thereby ensuring that module content is informed by topical research issues.
- Engaged actively in individual or collaborative research projects and scholarly activities, both internal and external to the University, applying the knowledge acquired to further develop teaching and other activities.
- Participated in the University's Performance, Development and Contribution Review process. Ensure that knowledge of the relevant subject area is fully up to date by actively engaging in continuous professional development and scholarly activities appropriate to the post.
- Undertook administrative duties appropriate to the post in adherence to university procedures.

Data Analyst, God's will Technology (Volunteer Experience) 2018- 2019

- Analyze and interpret statistical data to identify significant differences in relationships among sources of information.
- Compute and analyze data using statistical software package.
- Recommend new equipment and software packages.

Personal Assistant, Orumba South Local Government Secretariat 2017 – 2018

- Managed high priority and confidential information.

- Plan and schedule important engagement and official functions for the chairman Orumba South LGA.
- Demonstrated composure and flexibility in stressful situations.
- Investigated concerns across the constituents by meeting to know the basic amenities, projects, human capital development needed and presented accordingly to the chairman.

RESEARCH

Research Interests

Mathematics Teacher Education, Mathematics learning outcome, Students engagement, students learning styles, Equity and Inclusion in Mathematics Education, Use of Instructional materials in Mathematics Education, Applied Quantitative Analysis.

Research Projects

- Investigating Students' Computational Thinking Development and Learning Trajectory in Integrated Mathematics-Coding Instruction. (2025 - present). Utah State University (with lead PI - Jessica F. Shumway and Jody Clarke-Midura). My roles: working with an interdisciplinary team to analyze data.
- Learning to Observe: Unpacking Teachers Development of Expertise in Scientific Observation. (Summer 2025). Utah State University (with lead PI - Dr. Lauren Barth-Cohen, Co PI - Dr. Lynne Zummo, USU PI – Dr. Sarah Braden). My role: I worked directly with Dr. Braden on the project to help unpack how the social dynamics and identity work taking place during moments of observation influence how the talk and thus development of expertise unfold.

Journal Articles

- Samuel, O. O. & **Onyegu, E. C.** (2023). Analysis of the factors that causes diabetes mellitus using multiple linear regression (A study of Lafia, Nasarawa state). T*ijer International Research Journal.* http://doi.one/10.1729/Journal.41903
- Ayuba, S. A., **Onyegu, E. C.** & Samuel O. O. (2023). Mathematical dynamics of contagious caprine pleuropneumonia in africa and approximation using runge Kutta Method. *Tijer International Research Journal.* http://doi.one/10.1729/Journal.41902
- **Onyegu, E. C.**, Ayuba, S. A. & Samuel O. O. (2024). Students' perception of the problems in teaching and learning of mathematics in secondary schools in Orumba South Local Government Area, Anambra State. Fulafia Journal of Science Education, 2(1), 154-167
- **Onyegu, E. C.** & Frierson, M. (2026). Using Inquiry-Based Approach through Worked-out Examples to Conceptualize Strategies of Multiplication and Division. Utah Mathematics Teacher Journal.

- Obem, S. E., Ikeh, F. E., Nnaemeka, J. C., Eyiuche, O. R., Okafor, T. U., Eke, C. C., **Onyegu, E. C.** Eze, C. O. & Odo, E. S. (2026). Teachers' digital Assessment Competence, Parental Expectations, And Curriculum Implementation as Predictors of Secondary School Students' achievement In Mathematical Concepts in Physics in Enugu State, Nigeria. *Genetics and Molecular Research*.

UNIVERSITY TEACHING

Courses Taught for EEJ College of Education and Human Services Utah State University, Logan, Utah (2024-Present)

Undergraduate Courses

ELED 4062 - Teaching Elementary School Mathematics II: Number, Operations, & Algebraic Reasoning and Practicum for Teaching Elementary School Mathematics II
Development of pedagogical content knowledge in number, operations, and algebraic reasoning for teaching grades Preschool to Grade 6. Methods for designing and implementing mathematics instruction, assessment, remediation, and intervention are applied in a field-based placement. In person, Fall 2024.

ELED 5040 - Teaching Elementary School Mathematics II: Number, Operations, & Algebraic Reasoning and Practicum for Teaching Elementary School Mathematics II
Development of pedagogical content knowledge in number, operations, and algebraic reasoning for teaching grades Preschool to Grade 6. Methods for designing and implementing mathematics instruction, assessment, remediation, and intervention are applied in a field-based placement. In person, Spring and Fall 2025.

ELED 4061 - Teaching Elementary Mathematics I: Rational Numbers, Operations, and Proportional Reasoning
This course focuses on the development of pedagogical content knowledge in rational numbers, operations, and proportional reasoning for teaching grades Preschool to Grade 6. Understanding characteristics of instruction, assessment, remediation, and intervention will be critically considered. Online Spring 2026.

ELED 5040 - Teaching Elementary School Mathematics II: Number, Operations, & Algebraic Reasoning and Practicum for Teaching Elementary School Mathematics II
Development of pedagogical content knowledge in number, operations, and algebraic reasoning for teaching grades Preschool to Grade 6. Methods for designing and implementing mathematics instruction, assessment, remediation, and intervention are applied in a field-based placement. In person, Fall 2026.

ELED 5060 – Elementary Education Level III Practicum
Students apply instructional strategies in the curriculum areas of mathematics, science, social studies and language arts under the guidance of cooperating classroom teachers and university faculty supervisors, Fall 2024, Spring 2025, Fall 2025.

Courses Taught for Department of Science Education, Ekiti State University, Ipere Distance Learning Centre, Lafia, Nigeria (2023-2024)

Undergraduate Courses

MTH 122 – Calculus. Function of a real variable, one to one, onto domain, co-domain, types of functions, modulus, characteristic, integer, polynomial trigonometric, logarithmic and exponential graph of functions, inverse function, composition of functions, limit and continuity of function. Technique of differentiation, product, quotient and chain rules, implicit differentiation, first principle differentiation. Integration as an inverse of differentiation, basic rule of integration, indefinite and definite integrals, methods of integration, integration by parts, substitution and partial fractions, reduction formular, application of integration.

MTH 132 – Applied Mathematics. Vectors, scalars, position and unit vectors. Vector addition and subtraction, geometric representation of vector in1-3 dimensions, components, direction cosines, addition, multiplication of vectors, linear independence, scalar and vector products of two vectors. Differentiation and integration of vectors with respect to a scalar variable. Resolution projection of vectors, vector equation of a line. Two-dimensional co-ordinate geometry, straight line, circle parabola, ellipse hyperbolas, tangents, normal, statics, triangle parallelogram and polygon of forces.

MTH 231 – Mathematical Methods I. Real functions of variable. Review of differentiation and integration and their applications. Mean value theorem. Taylor series, real valued function of two or three variables, partial derivatives, chain rule, lagrange multiplier, increments differentials linear approximations. Function of complex numbers, complex conjugate. Multiple integrals. Vectors, scalars, position and unit vectors, dot and cross product, vector addition and subtraction. Equation of curve and surface, vector field theory, curl of a vector, directional derivatives. Stock and green theories.

Courses Taught for Department of Science Education, Faculty of Education, Federal University of Lafia, Nigeria (2019-2024)

Undergraduate Courses

SED 214 – Mathematics for Integrated Science Education. Change of subject formula, Statistics, Measurement and scale used in educational measurement, Presentation of data, measurement of central tendency and probability, Algebra; Algebraic expression and equation, Indices and logarithms, Variation; Direct variation, inverse variation, joint variation, partial variation, Differentiation and Integration, Differential calculus, Integral calculus, Some applications of differentials and integral calculus, Trigonometric; Trigonometric ratio, Trigonometric identities

EMM 122 – Secondary School Mathematics Content. Introduction to sets theory, Algebraic process, Series and progressions, Everyday arithmetic, Variation, Triangle and other polygons, Trigonometry, Circles theorems and its properties, Mensuration (plane and solid shapes), Longitude and latitudes, Bearing, Solid shapes and its properties, Polynomials, Matrices and determinant.

FULAFIA-MTH 111 – Methods of teaching primary and pre-primary school mathematics. Objectives of teaching mathematics at basic school, Strategies for effective teaching of elementary mathematics, Inquiry-based learning, Cooperative learning, Discussion based learning, Collaborative learning, Stages of Learning mathematics by schoolers, Geoboards, Triangles, Squares, Rectangles, Parallelogram, Trapezium, Kite, Rhombus, Pyramid, Prisms, Measurement of time, Measurement of volume, Math games, Math hopscotch, Prodigy math game, Problems with elementary mathematics instruction.

FULAFIA-MTH 113 – Mechanics and Properties of Matter. Physical quantity, S I units of physical quantity, Dimensional analysis, Scalar quantity, vector quantity, motion, speed, velocity, Acceleration, Equation of motion, Graphs of motion, Projectiles motion, Newton's laws of motion, Frictional forces, Momentum, Equilibrium of forces, Moment of a force, Elasticity, Work, Energy, Power, Gravitational force field, Rocket and satellite.

FULAFIA-PHY 111 – Mathematics for Physics Education. Indices, Logarithm, Algebraic equation, change of subject formula, Quadratic equation, Simultaneous equation, Variation; Types of variation, Probability, Binomial Theory, Measure of Central Tendency; mean, median, mode, Bar chart, Pie chart, Histogram.

MTH 223 – Numerical Analysis II. Euler's method, Runge kutta method; 1st order, 2nd order, 3rd order, 4th order, Adam Bashford method, Newton forward difference, Newton backward difference, Simpson's rule, Trapezoidal rule, Interpolation; forward Interpolation, backward Interpolation, Numerical differentiation, Numerical Integration

STM 222: Subject Methods for Mathematics Education. Different methods of teaching, Students' center method, Essential skills in teaching mathematics in 21st century, Instructional objectives in mathematics, Designing the scheme of work and lesson planning, Resources for mathematics teaching, Assessment in mathematics, Practical mathematics.

PRESENTATION

- **Onyegu, E. C.** & Frierson, M. (2025). Understanding Indices through Inquiry-Based Approach. Paper presented at the National Place-Based Education [PBE] Conference, Detroit, Michigan.

- **Onyegu, E. C.** (2026). Indices through Inquiry-Based Approach and Worked-out Examples. Presented at the Utah Council of Teachers of Mathematics [UCTM] Conference, Provo Utah.
- **Onyegu, E. C.** (2026). Led Mathematics Learning activities focused on Improving students' math participation and engagement at Utah State University Science Unwrapped, 2026.
- **Onyegu, E. C.** & Frierson, M. (2026). Understanding Strategies of Multiplication and Division through Worked-out Examples Using Inquiry-Based Approach. Presented at Research for Undergraduate Mathematics Education [RUME] Conference, Alexandria, Virginia.

Leadership and Service

- Program Coordinator for Mathematics Education, Faculty of Education, Federal University of Lafia, Nigeria.
- Unit Head Mathematics Education Program, Federal University of Lafia, Nigeria.
- Graduate Student Representative AERA Special Interest Group – Research in Mathematics Education.

Professional Memberships

TRCN – Teachers Registration Council of Nigeria 2017 - present

AERA – American Educational Research Association 2026 - present