

## Dean's Colloquium

Dr. Daniel Ntiamoah, Assistant Professor

Department of Mathematics, Hampton University



**When: Wednesday, February 12<sup>th</sup>, 2025**

**Where: Turner 129**

**Time: 3:30-3:50 pm, Q&A: 5 min**

**Title: The First Few Steps in Alternating Methods with Three Search Directions**

**Abstract:** This study investigates the choice of order of directions for Alternating Coordinate or Block Coordinate Descent algorithms. It is known that when starting the algorithm, the ordering of blocks in the first few steps can be important. We find for three blocks that it is beneficial to begin an alternating algorithm by testing different permutations of initial orders. We study which combinations of orders are most effective and design a testing strategy that outperforms both random and fixed orders in fair comparisons on quadratic test problems, offering potential improvements in the optimization processes for AI and machine learning applications.

**Biography:** Dr. Daniel Ntiamoah joined Hampton University in August 2024 as a faculty member in the Department of Mathematics. With an impressive academic background, Dr. Ntiamoah has excelled in teaching and research at Ohio University, Central Michigan University, and the University of Ghana. His research interests include optimization, machine learning, artificial intelligence, numerical analysis, dynamical systems, and mathematical biology, with a focus on their applications in high-dimensional problems across interdisciplinary fields.