Teaching Philosophy

"Mathematics is the *music of reason*. To do mathematics is to engage in an act of discovery and conjecture, intuition and inspiration; to be in a state of confusion—not because it makes no sense to you, but because you *gave* it sense and you still don't understand what your creation is up to; to have a break-through idea; to be frustrated as an artist; to be awed and overwhelmed by an almost painful beauty; to be *alive*, " Paul Lockhart

As an educator deeply embedded in the journey of teaching mathematics, my philosophy is founded on the conviction that every student can excel in their own mathematical reasoning. At the heart of my teaching philosophy lie the pillars of exploration, equity in education, student empowerment, and engagement with mathematical beauty. This belief is not just theoretical but is rooted in my extensive experience teaching at various levels, from volunteering in tutoring/mentoring programs like VITAL (Volunteers In Tutoring Adult Learners), Center for Veteran and Military Students (Indiana University), and The PMP (The Prison Mathematics Project) to leading classroom instruction as an Instructor of Record at Indiana University, Upward Bound (a TRiO Program), or University of Iowa in courses ranging from developmental basic algebra to teacher education to calculus. This variation in roles has offered me a unique perspective on the transformative power of mathematics education and have solidified my commitment to not only a student-centered approach but an aim towards student guided experience in the classroom. This approach demands a deep understanding of pedagogical and content knowledge, alongside a commitment to ongoing professional development to adapt teaching strategies that cater to the evolving needs of students in a rapidly changing world. My experience in teaching developmental, remedial, or pre-college mathematics courses has profoundly influenced my methodology, emphasizing the critical junctures where students' varying backgrounds, preparedness levels, and educational goals converge.

I first and foremost believe that students should not only be the center of educational experiences but should also wield the utmost agency in how and what is being taught. Acknowledging that every student inherently gives their all, in pursuit of understanding, I commit to acting as a trusted curator, illuminating their journey towards mathematical knowledge that benefits them. This philosophy has been shaped by my personal journey of

overcoming challenges and navigating through adversity to uncover the beauty and utility of mathematics. It began humbly in a remedial basic algebra night class in 2009, and through persistence and dedication, it culminated in the completion of my bachelor's degree in 2021, a master's degree in 2023, and a PhD expected graduation date of 2027. This period of growth and learning has not only deepened my interest in mathematical pedagogy but also shaped my focus on the dynamics of how students learn and relearn mathematics. It has driven me to critically evaluate the efficacy of current remedial approaches in mathematics education, which too often marginalize certain groups of students, sparking a commitment to seek and develop more inclusive and effective teaching methodologies. I understand the importance of education as a tool for empowerment and strive to make my classroom a place where students can chart their own paths toward knowledge. This philosophy is not static; it evolves with my experiences and the changing dynamics of education.

Central to my growth as an instructor is to be of maximum service to those students who are most marginalized in mathematics education. I try to create engaging learning environments where students' diverse backgrounds, identities, and experiences are not only acknowledged but leveraged as rich resources for collective learning. I do this by using student-created examples that pertain to their lived experiences and by creating class-constructed norms for not only the class to be held to but especially myself. Education, in my view, is fundamentally about empowering students to control their path of educational agency. This belief has been put into practice through my active involvement with OURFA^{2}M^2 (the Online Undergraduate Resource Fair for the Advancement and Alliance of Marginalized Mathematicians) and The PMP. I view Teaching as a dialogical process wherein knowledge is co-constructed and validated through meaningful interactions among students and between students and teacher. That is why I implement a pedagogy that prioritizes active learning, collaboration, and real-world application of mathematical concepts. By having students lead discussions within their groups and then the classroom as well as making the students responsible for their peers' understanding by stressing the importance of how we can lift each other by teaching each other. The group dynamic towards a common goal demonstrates how powerful we can be when we work together. This approach not only aids in the comprehension of complex theories but also enhances critical thinking, problem-solving skills, and the ability to work cooperatively.

In pursuit of continuous improvement, I am committed to the exploration and adoption of innovative teaching methodologies, notably inquiry-based learning and mastery-based grading systems. Inquiry-based learning, a method I've actively engaged with through participation in the SIGMAA Inquiry-Based Learning Workshop Series, encourages students to initiate questions and delve into mathematical concepts via investigation. This approach not only deepens their understanding but also cultivates an appreciation for mathematics. By learning from seasoned practitioners, I've gained insights into effectively integrating this pedagogy into curricula, enhancing the learning experience. Additionally, mastery-based grading focuses on providing personalized feedback that emphasizes progress and mastery over repetitive algorithmic performance. This system resonates with my conviction in fostering an environment where every student is empowered to reach their fullest potential. It's particularly beneficial in developmental math courses, offering a more equitable assessment framework that accommodates diverse life circumstances—such as parental responsibilities, work commitments, and unpredictable schedules—that may not align with a traditional, linear path of learning. As a former SEISMIC (Sloan Equity and Inclusion in STEM Introductory Courses) Scholar, I've been privileged to learn from researchers who have successfully implemented mastery-based grading in their introductory STEM courses. My approach sets high expectations for student achievement, underpinned by the belief that all students are capable of exceptional growth. In my role, I see myself as a facilitator of this growth, guiding students towards accomplishments they might have previously deemed out of reach. This philosophy acknowledges the challenges inherent in teaching but views them as opportunities for growth, innovation, and the development of resilience in both teachers and students. It fosters an environment where mistakes are embraced as vital learning opportunities, encouraging risk-taking, inquiry, and exploration.

I recognize the importance of professional development and community engagement in refining my teaching practice. My journey includes continuous learning from peers, mentors, and through participation in educational conferences and workshops. This engagement not only enriches my teaching methods but also ensures that I remain at the forefront of educational innovations, thereby providing my students with the most effective and impactful learning experience. Professional growth, for me, is about maintaining continuous contact with the teaching community, learning from new educators and those with more experience. This growth is continued with involvement and membership in the MAA, AMS, and AERA and attending

conferences such as the Joint Mathematics Meeting where I attended the workshops “Inclusive Active Learning in Undergraduate Mathematic” and Breaking the Cycle of Mechanisms of Inequality in Mathematics Teaching and Learning” This commitment ensures that I remain a dedicated steward of my community's educational needs. My teaching philosophy is a living document, reflective of my experiences, beliefs, and the evolving landscape of mathematics education. Lastly, I want to craft a legacy of curiosity, empowerment, and social responsibility, equipping students with the tools to navigate and shape the future thoughtfully and compassionately.