Teaching Statement

Giovanni Ferrer 2025

Philosophy. My approach to teaching mathematics is grounded in the fact that genuine understanding arises through *active inquiry*. My fundamental goal is to help students cultivate both conceptual clarity and intuition, so that they may:

- *reconstruct* concepts viewed in the classroom,
- connect ideas across topics *outside* of the classroom, and ultimately
- find *joy* in this process.

Background. My own path to mathematics began with a transformative classroom experience. I must admit there was a time where I, like many people going through our educational system, *"hated math"*. It was not until high school that I had the privilege of being instructed by a teacher whose clarity and enthusiasm revealed mathematics as something *deeply beautiful* and *accessible to all* who actively seek it. That experience continues to shape my teaching philosophy to this day:

> I want my students to experience the same *joy* that comes from understanding an idea fully and witnessing how it fits into the larger picture.

Experience. As a teaching associate at the Ohio State University, I was trained by the department through a month-long instructional course. This time focused on pedagogy and institutional matters prepared me to:

- lead weekly recitations and problem solving sessions,
- hold office hours with regular attendance, and
- work at the tutoring center every week at the Ohio State University.

While performing these duties, I was able to integrate inquiry-based methods that center student reasoning. Rather than presenting complete solutions, I often began by posing open-ended questions that encouraged students to explore examples, identify patterns, and articulate conjectures. Such approaches were *effective* in fostering intuition and highlighting the creative aspect of mathematical discovery, as seen through my teaching evaluations, class grade statistics, and first-hand experiences with my students.

Mentoring. Mentorship plays a central role in my teaching. At the Ohio State University, I have participated in the CYCLE program, which introduces undergraduates to mathematical research. Graduate mentors guide students through:

- formulating a focused problem,
- developing the necessary background,
- carrying out an investigation, and
- presenting results at a poster session hosted by the mentors.

I have also mentored students through Research Experience for Undergraduates (REU) programs over several summers. One particularly meaningful experience has been mentoring a former student from my Calculus III course. Recognizing her strong curiosity and aptitude, I encouraged her to apply to the CYCLE program, where I continue to mentor her as she has chosen to transition from chemistry to theoretical mathematics. Witnessing her growth has reaffirmed for me the importance of encouragement, guidance, and cultivating the *joy* of research and understanding.

Growth. Teaching is a continued practice of reflection and refinement; in a sense, the act of teaching is itself the ultimate act of learning. For this reason, I actively seek feedback from students and colleagues, observe different teaching styles, and adapt my methods to promote clarity and engagement. Obtaining a post-doctoral position, I aim to continue refining my skills and effectiveness in teaching, mentoring, and paying forward the *joy* of mathematics.