

Teaching Statement

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Teaching is an integral and fulfilling part of my work. In my very first college math class, I was drawn not only to the rigor and elegance of calculus, but also to my professor's genuine willingness to help. That is what I aim to bring to my students. That is why I want to excite my students about mathematics and encourage them to think, reason, and explore. In this statement, I will present my teaching effectiveness and experience and demonstrate my teaching philosophy and practices.

Effectiveness & Experience

My teaching evaluations provide evidence of both effectiveness and growth. At Georgia Institute of Technology, the interpolated median for overall instructor effectiveness was 4.35/5, 3.79/5, 4.17/5, and 4.72/5 from Fall 2024 through Spring 2026. At Rutgers, my section mean for teaching effectiveness in *Introduction to Linear Algebra* rose from 3.91/5 in Summer 2020 to 4.81/5 in Summer 2021. Student comments and *Thank-a-Teacher* notes have repeatedly emphasized my clarity, accessibility, enthusiasm, and commitment to student learning. I also received the Rutgers Department of Mathematics *TA Teaching Excellence Award*, and a faculty observation of my Fall 2023 *Calculus II* class rated my overall performance “Excellent.”

My teaching experience ranges from calculus and linear algebra to differential equations, probability, proofs, and combinatorics. Beyond the classroom, I co-organized Rutgers' *Directed Reading Program* and later participated in the program at Georgia Institute of Technology. These experiences taught me to design mentoring structures and to attend carefully to how students approach mathematics. As coordinator of *Rutgers' Overseas Semester Experience* Initiative from 2020 to 2021, I helped students unable to come to the United States enroll in equivalent courses at local institutions and worked with local faculty to ensure that those courses met requirements.

Philosophy

My teaching philosophy centers on two goals: **(A)** practical problem-solving skills and **(B)** mathematical reasoning skills. The first is what students come to class for: new knowledge, new theories, and new tools. The second is a bit more abstract. We have all experienced this: memorizing formulas and forgetting them. Formulas come and go, but the training remains: How do we phrase a problem mathematically? What connections can we make to what we already know? How do we explain why our answer is correct? I want my students to leave my class not only knowing more, but also being better able to reason mathematically.

I have been trying several small practices to support **A** and **B**. They are relatively easy to implement regardless of the size or level of a class. I *list the goals for the day and recap* previous material. The recap reviews specific formulas and tools (**A**), while the goals help students see the big picture (**B**). I also *prompt students with guiding questions* such as “What’s your best shot at this integral?”, “What do you think will happen if we remove the Axiom of Union?”, or simply “Any guesses?” These questions encourage students to explore (**B**) and make their voices heard.

I *use color when presenting*. Distinguishing steps mostly helps with **A**, while making visual connections also supports **B**. I use high-contrast colors to make the material easier to read for color-blind students, including myself. I also *leave some steps in my notes or slides blank* and give students time to fill them in and discuss their ideas. This gives them immediate practice (**A**) while the new material is still fresh, instead of waiting until homework. It also keeps them involved instead of simply watching me solve the problem.

These are only part of how I support my students. Much of that support happens behind the scenes, though I make some of it deliberately visible. I will discuss this broader support in the next section.

Practice

Before the semester A clear and concise syllabus is provided to my students by the start of each semester. Generally, I keep the class policies lenient but implement them with as few exceptions as possible. An especially important logistical aspect is supporting the students who receive approved accommodations. I always contact them early and let them know that they always have the support they need.

I also find it useful to speak with instructors who have taught the course before. Everyone prepares and presents materials differently, but I find it important to look at past notes, tests, and other materials from my colleagues; this manages my expectations and gives me reliable reference points. Another valuable practice is to review my own *teaching journal* (discussed below) and see what I learned and what I can do better.

Before class I release my notes beforehand on my personal teaching page, or the required course platform. I also make a habit of checking the course Q&A platform. When preparing a lecture, I look for “cross-references” or recurring themes (**B**), that is, examples that the students encounter throughout the course. For instance, the integral $\int \frac{dx}{x^p}$ not only shows up in finding antiderivatives, but also in improper integrals and convergence of series. In *Foundations of Mathematical Proof*, the power set cardinality $|\mathcal{P}(A)| = 2^{|A|}$ becomes evident using bijections via indicator functions from A to $\{0,1\}$. Here $\{0,1\}$ is precisely how we constructed the natural number 2.

In the classroom Let me discuss how I employ my pedagogy here. There are several things I find highly effective.

In-class activities Students learn best when they take an active role. Rather than presenting every example myself, I prepare in-class activity (ICA) worksheets consisting of introductory exercises that reveal the themes I cover (**A**). Students work in groups of 3–5 and record each other’s names on the worksheet so that they feel that they belong to a mini community. Usually, these problems do not take too long, and I walk by, check their progress, and give them hints here and there. I also rotate these groups after each exam.

Three examples, and more I learned this three-example method from my advisor as a general principle in learning anything new (**A**, **B**). When a new concept is introduced, I give three examples: a trivial one, a typical one, and a general one. In Linear Algebra, I give (1) the zero space, (2) a Euclidean space, and (3) the space of polynomials, when introducing vector spaces. This three-example trick is easy enough for them to remember and apply. When possible, I present animations and plots using Mathematica; visualization makes examples more accessible (**A**), and my students find them far more intuitive than plain sketches. This is particularly handy for Multivariable Calculus with 3D regions of integration, and probability theory where I show how a bell curve emerges from repeated convolution after normalization, as described by the Central Limit Theorem.

Give short breaks and digressions Attention span is vital for learning, and I always try to “reset” it with a short break, or by a brief digression. It really helps to build a friendly and relaxing atmosphere. In Multivariable Calculus, I discuss how various Stokes Theorems appear in electromagnetism. In Linear Algebra, I explain that *Eigen*- is borrowed from German, where it means “own” and is cognate with the English word *own* which offers a memorable hint at the core idea (**B**): a linear map sends a vector to a scalar multiple of itself.

Build a more inclusive classroom My class policy always begins with “*Be respectful to everybody.*” I want my classroom to be a place for all to enjoy math, equally. As a non-native speaker, I am keenly aware of the struggle of students from different backgrounds. I never hesitate to pause for clarification; I also walk to them and listen to them carefully. In short, I believe individualized attention motivates them to participate more. Even a small gesture, such as stepping toward a student as they speak, can help them feel heard and included.

After class I have a core principle in interacting with students: *Do not assume*. Anyone can have gaps in understanding or miss something important. I let *them* tell me what they know and where they are stuck. I find these “Socratic” interactions effective for a wide range of learners. I relate to their difficulties by sharing challenges I have faced in the past and in my own research. Students feel more comfortable if they realize that I also struggle with math! I explicitly allow them to do their homework during my office hours, as some students learn more effectively this way.

A good teacher seeks feedback throughout the semester. The first homework usually gives me an initial sense of my students’ level, while quizzes and tests provide additional reference points. I conduct at least one anonymous midsemester survey to learn how students think I am performing. When possible, I also incentivize participation in the final teaching survey; for example, I have offered a 3% increase on the final exam if more than 85% of the class completes it. I meet regularly with my teaching mentor, who offers munificent guidance and ideas. My mentor’s notes give me an outside viewpoint, which often leads to concrete changes. I also participate in the *Teaching Observation Partner* cohort, in which I observe and am observed by another instructor. We then discuss our observations with an expert from our Center for Teaching and Learning.

Self-reflection is also an effective tool. I keep a *teaching journal*, organized around four stages: preparation, the classroom, after-class support, and assessment. At the end of each semester, I record what worked and what did not, review evidence such as attendance, survey responses, and exam performance, and new things to try next time. Reading *Small Teaching* by James Lang also gives me insight into the science of learning.

Conclusion

What I will teach in the future may be different from what I have taught, but my commitment will remain the same. I will approach every student as equally capable of growth and help each develop both practical problem-solving skills (A) and mathematical reasoning skills (B) with my working practices. I will continue to build inclusive classrooms, provide support inside and beyond my classroom, and use student feedback, observation, and reflection to improve my teaching. Few things are more rewarding to me than seeing students make progress and develop a genuine interest in the pursuit of knowledge.