Teaching Statement

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Teaching philosophy

Students rarely fail at mathematics because they lack the capacity for it. They disengage because they cannot see why it matters to them. I came to teaching from structural engineering, with an M.Sc. in Structural Engineering from the University of Virginia, an M.Sc. in Earthquake Engineering from Iran University of Science and Technology, and six years designing, reviewing and supervising reinforced-concrete and steel schools and bridges. That background shapes everything I do in the classroom. I teach mathematics as the working language of engineering, and I teach engineering as a place where mathematics becomes visible. My goal is the same in a calculus section and in a structures course: rigorous ideas, built by the students themselves, in a setting where every student believes the work is within reach.

Two disciplines, one classroom

For seven academic years (Fall 2019 to Spring 2026) I was a full-time Lecturer in the Applied Mathematics Center at UVA, teaching Calculus I and II, Multivariable Calculus, Ordinary Differential Equations, Linear Algebra and Probability to more than 1,100 engineering students. Before that I taught the engineering side of the same bridge: Statics, Strength of Materials, Structural Analysis and Reinforced Concrete Design at UVA and the University of Central Florida, and mechanics, structural analysis and steel, concrete and masonry design at two universities in Iran.

Teaching both sides lets me connect them deliberately. In Linear Algebra, students meet matrices as stiffness and flexibility matrices of real frames. In Differential Equations, the mass-spring-damper is a story about a building in an earthquake, and a student who solves for resonance understands why tall structures need dampers. In Probability, load and resistance factors show why codes are written the way they are. When I teach Statics or Mechanics of Materials, I do the reverse and make the mathematics explicit, so engineering students see that the equilibrium equations they write are a linear system and that a deflection curve is the solution of a differential equation.

How I teach

Students discover before they are told. In Ordinary Differential Equations I taught with an inquiry-based approach that grew out of an NSF-funded project and has been used in UVA's Applied Mathematics Center for about six years. Each lesson is a pair of worksheets: a pre-class worksheet that students attempt on their own, then an in-class worksheet completed in small groups while I and the teaching assistants move between tables. Students sketch slope fields, conjecture where solutions go and test their guesses before we name the method. Class time goes to reasoning, not transcription, and misconceptions surface while help is in the room.

Grades should measure learning, not early mistakes. In Calculus I and Probability I used mastery-based grading. Each core skill is assessed at a series of checkpoints; a "progressing" result brings written feedback and another chance at the next checkpoint, and the final grade reflects what a student has mastered by the end of the term rather than an average of first attempts. With colleagues I studied this approach in *Exploring the Impact of Mastery Grading on Student Performance* (ASEE 2024).

Confidence is part of rigor, not a substitute for it. Two co-authored ASEE studies (2022, 2023) on engineering students in UVA's mathematics courses showed me, with data, that many capable students carry real anxiety about mathematics and that it shapes their choices, including how they elect to be graded. So I start each course with low-stakes, diagnostic assessments, I make office hours a place where foundational questions are welcome, and I treat errors, including my own at the board, as part of doing mathematics. One student wrote that when classmates corrected me, I "re-thought the problem and saw whether or not the student was correct," and that a student who was wrong was never made to feel bad.

Make the abstract visible. I build animations and interactive models for my courses and research: Taylor polynomials converging, a Laplace transform turning an ODE into algebra, Green's, Stokes' and the divergence theorems checked on worked examples, and a steel frame with shape memory alloy dampers responding to an earthquake. A picture that moves often does what a page of algebra cannot, and I share these openly on my website for students to explore on their own.

Course design and leadership

I have owned the full instructional cycle in every course: syllabi and learning objectives, homework and assessments tied to engineering applications, lectures and active sessions, office hours and records. I taught fully online sections from Spring 2020 through Spring 2021, including a compressed Summer 2020 ODE section. I have supervised up to nine undergraduate teaching assistants and a graduate assistant in a single semester, guided more than ten TAs in 2024, and helped write exams and grading rubrics so that every section of a multi-section course was assessed consistently. I have advised students on majors and minors, written recommendation letters for graduate school and engineering jobs, and given lectures at university open houses.

Evidence and growth

I treat teaching as a craft to be studied. Through UVA's Center for Teaching Excellence I completed the Foundations of Scholarly Teaching program, the Tomorrow's Professor Today fellowship and training in active-learning techniques for engineering classes, and I continued to attend CTE sessions through 2025. Student evaluations are one of my main guides. Students describe a classroom where questions are welcome: "He was always open to questions and discussions in class," wrote a Calculus II student, recalling the day a classmate found a different path to a solution and I invited him to present it at the board. Another called my Differential Equations section "by far the best APMA I have taken so far." I read the critical comments just as closely: requests for more step-by-step examples and faster feedback are what I am building into my next courses. In 2020 the Society of P.R.I. at UVA recognized me as "a key component to undergraduate success in the Applied Mathematics Departments."

What I would teach

In mathematics, I am ready to teach the full first- and second-year sequence (Calculus I–III, Differential Equations, Linear Algebra, Probability and Statistics) as well as engineering mathematics, partial differential equations and numerical methods. In civil engineering, I am prepared to teach Statics, Mechanics of Materials, Structural Analysis, Steel and Reinforced Concrete Design, and Structural Dynamics, and to develop electives in earthquake engineering, matrix and finite element methods, structural optimization, and smart structures and materials. In every one of these courses my aim is the same: students who leave able to reason with mathematics, see where it lives in the physical world, and trust themselves to keep learning it.