Statement of Teaching Philosophy

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29/100. I had only earned 29 points on my first big exam as a physics major. I thought I had understood the material, I questioned my choice of major, and I contemplated dropping the course. My professor attempted to assuage our fears, encouraged us to persevere, and imparted on us that with the right mindset we could improve our trajectory in the course. He instilled in me the confidence that despite a poor initial performance, I could use this opportunity as a learning experience. While I learned all about Lagrangian dynamics and non-inertial reference frames in the remainder of the course, my most valuable lessons came through my failure on that first test. This experience not only transformed my approach to learning, but also helped shape my beliefs as an educator. As an educator, I strive to create a classroom environment where students feel comfortable making mistakes and know that every mistake can be an opportunity for growth. My role is to guide them through these challenges, much like my instructor did for me. From this foundation, my teaching philosophy is built on four key principles: overcoming negative mindsets and fostering resilience, encouraging curiosity, and providing the support necessary for students to reach their full potential.

Overcoming students' preconceptions about the subject matter is one of the first and most important issues an instructor can face at the start of the term. A student's mindset has a great impact on their ability to learn and engage with the course material, and I believe it is the responsibility of proactive instructors to tackle negative mindsets. I often share my previous anecdote on the first day of class. This anecdote helps me show the students that while physics might be difficult, failure doesn't preclude them from future success, it doesn't define who they are, it just helps them to highlight what they don't yet understand. I encourage my students to embrace the possibility of failure when working through problems collaboratively, as it is an important part of the learning process. Identifying breakdowns in their problem-solving process in the classroom will help prevent them from making the same types of mistakes on their exams. I also aim to be approachable, so that students feel comfortable broaching any lack of understanding with me. I find that discussing my previous difficulties with physics is conducive to creating this kind of environment. In the pursuit of both maintaining student motivation and fostering resilience, I endeavor to help them channel the power of "yet." I impart on my students that asking for help is not a display of weakness, but rather a display of strength; It is a hallmark of someone with a strong mindset who can envision growth in their future. If students believe they can solve a problem, then with enough perseverance they can succeed. When a student can adopt this mental framework, it will help them not just in the classroom, but also with professional challenges, interpersonal communication, and emotional regulation.

The phrase "physics lecture" often conjures up images of traditional one-way communication from professor to student through direct instruction. While some amount of lecturing is always necessary, use of interaction, collaboration, and hands-on activities create a more engaging classroom environment, and enhances learning. I have experience with direct instruction, inquiry-based learning, expeditionary learning, and cooperative learning models, and I envision using an evolving blend of these modes of instruction to best suit students' needs. I have noticed during lectures, the palpable energy in the room when I roll out a big mysterious physics demo, as students murmur about what's to come. Student attention also spikes whenever I ask them to discuss an in-class question, and I observe an elevated participation rate. Above all, I intend to make learning exciting for the students, whether that's animatedly using my whole

body as an impromptu demo, or imitating racecar noises to discuss the Doppler effect. I make every effort to help show students the beautiful real-world manifestations of what we learn about in the classroom. To connect observed phenomena to course topics, I highlight common experiences such as the increasing pitch they hear when they fill their water bottles, and the annoying air pressure fluctuations they might experience if a car window is open. What drew me to physics is not only the beautiful descriptive and predictive power of physical models, but also the beautiful exhibitions of these phenomena in the real world. By inverting this formula, asking students how we can describe the phenomena we observe with the tools of physics that they've learned, I can help them build critical thinking skills, nurture their curiosity, and encourage them to engage more critically with their surroundings.

At all points in my role as an educator, I create an inclusive and supportive learning environment that meets the diverse needs of all students, including those with disabilities and language barriers. Throughout my time as a lead TA and instructor at UC Davis, I've worked with the Student Disability Center to ensure that the needs of students with accommodations are being met. I incorporate Universal Design for Learning strategies into my teaching, whether that be the use of clear vocabulary on assessments or adding captions to educational videos that I create to improve comprehensibility. These details help all students and create a more equitable experience for English language learners and native speakers alike. I diversify how I present information, using visual aids including in-person demonstrations, online simulations, and additional video resources. I have also been a member of the Graduate Teaching Community for multiple quarters, where I have conferred about pedagogical research with an interdisciplinary cohort of graduate student instructors and discussed how the educational experience can differ for students from marginalized and underrepresented communities. I am cognizant of the varied histories and upbringings my students have when they enter the classroom and create an equitable environment for all.

At the beginning of the term, I help students overcome negative mindsets to begin the course with a growth mindset conducive to success. During the term, I prevent student motivation from waning by fostering resilience and encouraging their curiosity. I also support students by providing help and additional resources through multiple channels to help all students succeed to their fullest potential. All these aspects are rooted in effective communication, and I replicate my communication through various avenues to meet students where they are. I have been able to put this philosophy into practice from 11 quarters in lower division physics for life science majors to teaching a review of advanced mathematics for incoming graduate students. I aim to help students share my appreciation for the physics and math that govern our universe and enhance their ability to have a positive impact on the world.