TEACHING STATEMENT

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The Answer: In the classic quiz show *Jeopardy!*, contestants must supply the trivia question corresponding to the answer they are given, with a cash reward for each correct question and answer pair. As a teacher, it is tempting to fall into this system of giving students the answers and hoping they can correctly apply their knowledge when it is needed. But what is an answer without a question? The show's scoring scheme suggests that knowledge is worth something only when questions and answers appear together, and this is a helpful perspective in the classroom. To give my students the best value from my courses, I should teach them the basic information they need, then walk alongside them as they expand and apply it to ask, appreciate, and answer the important questions in their lives.

This approach to teaching is student-centered and holistic, and has earned me several honors. In graduate school, the University of Kentucky math department recognized my teaching with its annual Award for Outstanding Teaching Assistants, as well as the (atypical) opportunities to serve as instructor of record for three classes, Lead TA for Business Calculus, and review session leader for graduate students taking the Algebra Prelim Exam. As a postdoc at the Colorado School of Mines, I have continued to refine my skills and strategies by teaching new upper division and online classes, participating regularly in our department's teaching seminar, conducting research with undergraduates, acting as a faculty advisor for the Society for Women in Math, completing our university's summer courses in Facilitating Online Learning and Accessibility in Education, and participating in MAA Project NExT.

The Question: How are student engagement and participation achievable in practice? The first principle of translating these ideas into results is clear, careful planning and communication. I also believe that significant mathematical and personal growth results from my appreciation of the unique learning styles and abilities of each student. On this foundation, I encourage active participation in the learning process, both in and out of the classroom. Practically, my approach incorporates principles of universal design, active instruction, flexibility, and mentorship.

Universal Design: When designing courses, I strive to make each element engaging and worthwhile while building a cohesive whole that is organized, approachable, and challenging for each student. I start each semester by clearly communicating strategies for success in my class. Providing a course calendar showing all assignments and a consistent schedule allows students to quickly form a routine and work out scheduling conflicts in advance. By starting with a complete and deliberate plan for each course, I give myself more time during the semester to invest in my students and more freedom to make small changes to help each of them succeed.

Good planning also incorporates variety and flexibility. Clear expectations and objectives enable students to to take ownership of learning the material, and a well designed course allows them some agency in choosing ways to display their mastery that are both rigorous and intuitive. For example, I regularly encourage my students to practice their mathematical communication skills by explaining their work to me, and allow students to revise their work in writing or orally during office hours.

Use of technology and creativity in both instruction and evaluation naturally provides for the needs of students with all abilities while giving everyone more resources and paths to success. In an online environment, this is especially important as "classroom interaction" is much less natural and more difficult to foster. In these classes, I encourage my students to instead interact via discussion boards, recorded and live videos, and other virtual means in order to preserve the idea of learning in community. As I continue to become more proficient in universal course design,

I plan to continue creating courses that regularly integrate multiple mediums of instruction and assessment. By drawing from active, inquiry-oriented learning models and providing opportunities for each student to interact with the material in the way they find most natural, I aim to create an environment where everyone is valued, enabled, and prepared to learn well.

Active Instruction: As I gain teaching experience, I continue to move towards active learning models in many aspects of my courses. Whether the day requires a short lecture to lay groundwork for new ideas or is more focused on an activity, deliberate engagement is an important and valuable goal. While lecturing, I model mathematical flexibility and creativity by presenting a range of examples and contexts for new ideas. I encourage my students to interact with the material by asking questions and offering suggestions on what we might do next. By regularly asking, "how can you use this?" rather than just saying "this is useful," I open the door to imagination in problem solving and give opportunities for each student to take ownership of their active role in the class.

In small group settings, I focus on generating good discussions around concepts. These conversations help my students understand new material from multiple perspectives, which solidifies their understanding of both mathematical techniques and motivation. Practically, this often looks like asking questions. When a student asks for feedback, I find that a simple "Yes" or "No" is often less instructive than asking "Do you think it's right? Why?" or "Have you discussed your strategy with a neighbor?" The practice of explaining their work out loud frequently leads to the student answering their own question, as well as gaining confidence, recognizing patterns, making connections with other parts of the course, and developing good mathematical communication skills.

Flexible Assessment: In keeping with a classroom emphasis on adaptability and working with different learning and communication styles, I am learning alternative ways to assess my students' progress that are less stressful and more varied than the traditional emphasis on three or four long exams. In my College Algebra and Intro to Analysis classes, I gave six exams spaced evenly throughout the semester, thus lessening the amount of material and percentage of the overall grade associated with each test. This worked well, as my students stayed current on our progress through the material and took each task seriously, but were less likely to become overwhelmed because the stress of demonstrating mastery was more equally distributed throughout the semester.

While I received positive feedback on this system, some students reported feeling almost continuously pressured to perform, suggesting that time between assessments is valuable. As I develop my teaching practices, I hope to continue to find ways to set students up for success by evaluating their knowledge without asking them to perform under pressure in a small amount of time. This semester, I am piloting a revision/mastery system in my Abstract Algebra course where students can earn back credit on returned work by demonstrating that they understand their mistakes and have learned to correct them. As I work with other members of my Project NExT cohort this year to learn more about flipped classrooms and mastery-based grading, I plan to continue to implement evidence-supported practices that will help my students thrive as mathematicians and as humans.

Mentorship: Overall, I believe the most valuable thing I can be for my students is a supportive role model as a mathematician and as a person. Whether I am acting as a teacher, a mentor, an advisor, or a colleague, I can create an environment for growth by acting on the belief that every person present has brought value to the endeavor. As a faculty advisor for the Society for Women in Math at CSM, I am an encouraging voice to the next generation of mathematicians at our school. While advising undergraduates on a research project, I have opportunities to offer extended personal and mathematical mentorship and knowledge to my students.

In any situation, my goal is to encourage every person present and enable them to reach their full potential. My most treasured piece of feedback came from a student who reported that she "[had] grown massively as a mathematician here- for a multitude of reasons, but mostly due to **you** and your passion for math, and how much you care about your students." By making math personal, applicable, and flexible, I hope to have a similar impact on many students as I equip them to ask and answer the important questions in their lives.