CATIE ACITELLI

◇ Teaching Statement ◇

My fourth grade math teacher was the first mathematics educator that challenged me to think beyond the scope of the curriculum; it was then that I decided to become a math teacher and mentor. In working toward this goal, I have taken numerous professional steps to further my career. Namely, I have established and maintained a tutoring business, co-founded a non-profit middle school mentorship program, written a university level mathematics placement test, earned a bachelor's of science in both mathematics and secondary mathematics education as a North Carolina Teaching Fellow, taught high school mathematics for six years, wrote and implemented district curricula at the secondary level, and returned to graduate school. As a graduate student, I have been the teaching assistant and instructor of record for various Discrete Math, Calculus, and Linear Algebra courses. Additionally, I have completed the Preparing the Professoriate (PTP) Program, and I am pursuing my Teaching and Communication Certificate (TCC). PTP focuses on practical high-level teaching experience and professional development with mentorship from distinguished faculty. TCC emphasizes clear communication of complex ideas to diverse audiences through 100 hours of professional development and the completion of a portfolio. As I seek a mathematics PhD with a minor in mathematics education, I remain informed on current educational research and am able to actively apply best practices with my students.

For me, teaching is an opportunity to share the knowledge and expertise I have gained as a high school mathematics teacher, graduate student researcher, teaching assistant, and graduate instructor. I firmly believe that mathematical training must leave students with the ability and confidence to solve problems and apply the concepts they have learned, and my teaching approach embodies this concept. Many students view the learning of mathematics as discrete, as they take courses with different titles every semester from the time they enter middle school. On the contrary, part of the beauty of mathematics is that it is fluid and interconnected. Much of my teaching, learning, and doing of mathematics is centered around this belief. I teach that the most important part of mathematics is its concepts. Armed with a deep conceptual understanding of topics, students leave my class with the ability to approach real-world problems from a conceptual perspective.

Presenting course material in a consumable manner is critical to the learning process, and delivering information in many different formats helps enhance students' working knowledge of the course content. I believe that students learn best when the classroom is a motivational and nurturing atmosphere, and I aim to foster such an environment through the implementation of multiple teaching tools and strategies that encourage open communication. Incorporating technology such as the polling and breakout room features on Zoom, discussion forums on Moodle and Piazza, collaborative talk spaces on Padlet, and videos on YouTube and Flipgrid, increases student engagement through constructive interaction with peers, teaching assistants, and the instructor.

In addition to collaborative technology, I supplement my instruction with the appropriate use of teaching enhancing technology. For example, when teaching the Elements of Calculus course, the 225+ students work in small grouping using Desmos to explore the graphical relationship between a function and its derivative. In my Calculus for Life Sciences course, I utilize MATLAB to give students a visual of slope fields when discussing applications of relevant differential equations. Students in my Introduction to Linear Algebra course are encouraged to become proficient in typesetting with LaTeX, and I provide opportunities for this to take place. Though this is optional, over half of the students in my Spring 2021 class used LaTeXto type their homework solutions by the end of the semester. In addition, since that class was comprised of students from 26 different disciplines at various levels of their academic careers, I opened up my office hours for discussion centered around applied linear algebra using MATLAB and Python. Two graduate students who regularly attended these office hours were able to further their respective thesis projects. An undergraduate student

who explored connections to engineering during these office hours will began graduate school in the Fall.

Students are individuals who come from diverse backgrounds and have different skill sets. At the beginning of the semester, we adopt an axiomatic system centered around learning for all students, and we agree on classroom expectations that help cultivate a classroom culture consistent with those axioms. Throughout the course of the semester, students have opportunities to discuss aspects of the course which are both benefiting them and no longer serving them well. In a recent mid-semester survey, students suggested that I make Zoom poll questions available on the course Moodle page after class. In a subsequent survey, many students indicated that they used these poll questions to gauge their familiarity with content as they studied. Allowing these surveys to inform the structure of my class has proven beneficial, as evidenced by my student survey responses and course evaluations.

In addition to maintaining a student – centered classroom atmosphere, I strive to help students gain excitement around mathematics by making connections between seemingly unrelated topics. For instance, when teaching beginning Calculus students, I emphasize the importance of rates of change with applications to business and economics, forestry, medicine, engineering, and physics.

As a mathematician and educator, I believe greatly in the power of mathematics as a unifying language. In my classes, I aim to interact with students in a way that emphasizes this significance. On assessments, students are required to write in complete sentences and justify their steps. If students use symbols, those symbols must be used appropriately. I model this expectation during instruction and emphasize it in office hours and during group work.

In order to do mathematics well, one must be able to speak the language with a certain level of fluency. In the Fall 2020 semester, I served as the teaching assistant for an online synchronous section and the instructor of record for an online asynchronous section of Introduction to Linear Algebra. In doing so, I noticed the language deficit with which many students entered the class. Since an introductory proof writing course is not a prerequisite for this proof-based Linear Algebra course, I restructured the beginning of the course for the Spring 2021 semester and implemented several formative assessments as checks for understanding. These daily Zoom polls, weekly Moodle quizzes, and mid-unit Gradescope writing assignments allowed students to engage in rich discussions surrounding the content, practice reading and writing mathematics in a safe environment, and pinpoint theoretical misconceptions before formal assessments. Low-risk assignments also provide me with enough data to scaffold questions that keep student tasks at a high level of cognitive demand. In a recent survey, students indicated that they appreciate the multiple forms of assessment, as they receive regular feedback on their work.

In the Spring 2020 semester, I inherited two Elements of Calculus courses on the day the University closed due to COVID-19. Though I was unfamiliar with the students and their classroom culture, I was able to provide the class with a meaningful learning experience. I quickly transitioned the courses to an online asynchronous format by updating the pacing and syllabus to correlate with my previously-recorded lecture videos and recording supplemental videos to account for potential learning gaps. Course evaluations from this semester reflect my ability to be agile during the transitional time.

I regularly strive to improve my teaching through both attending professional development seminars and seeking guidance from colleagues and mentors in the field. Additionally, reflection on student feedback and careful study of end-of-semester evaluations are vital to my growth as an instructor. As I continue on the quest of strengthening my teaching, my hope is that students will leave my classes with a new appreciation for the field of mathematics and the skills upon which they can build.