

TEACHING STATEMENT

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I believe that students will rise to the expectations of the instructor. This belief is the foundation for my teaching philosophy and style. One manifestation of this belief is that I do not state that group work and board participation are either required or optional in my class – I merely expect them, and, with few exceptions, they are readily given. Affirming this philosophy is the predictable behavior of students in my classes; faculty and graduate student observers alike have consistently commented on and expressed wonder at the dynamic participation and active engagement of my students during class. Although some of my students express frustration on end-of-course evaluations with the high standards I set, I am encouraged by the feedback I receive once the course is over: “I want to commend you on your teaching... You pushed us to excel and as much as we didn’t like it, it turned out for the best!” (College Algebra and Trigonometry student)

The University of Nebraska offers a diversity of teaching experiences. I have taken advantage of these opportunities by teaching classes ranging from primarily freshman precalculus courses to classes for non-math and non-science upperclassmen. The students in my precalculus course were primarily freshman technical majors, and over half of them came straight out of honors programs in high school. In contrast, the students in my contemporary mathematics course were strictly non-math and non-science majors, and, with a handful of exceptions, hated mathematics and were convinced that they would never understand or appreciate mathematics of any sort. While it is exciting to work with bright students who are interested in mathematics, as were many of the students in my precalculus class, I find it extremely satisfying to “convert” a non-math and non-science student, such as the contemporary mathematics student who said “I felt like I understood the material well, which doesn’t happen often in math. Our teacher understood that math was harder for a lot of us, so she took time to help us understand, as opposed to some teachers who just don’t care. She is truly passionate about teaching and math, which made this class fun.”

I find it both challenging and rewarding to adjust my teaching style to the different types of students I encounter in class. As an example: many of the non-math and non-science majors in my contemporary mathematics class were art or english majors. I made it a point to add a unit on tilings, where the students designed a tiling of their own and analyzed what sort of tiling it was. Additionally, I modified several of the homework assignments into longer writing assignments that required using the mathematics we had learned in a specific unit. For units that were more numerical, and thus more anxiety-inducing to these students, I made class much more interactive, so instead of just explaining how to use a random number chart, each student was assigned a number, and we used a random number chart to award candy bars to a few students. In contrast, my precalculus students were serious about improving their performance on timed exams and quizzes, so I offered them extra “speed-quizzes,” where the quiz contained more problems than could possibly be completed in ten minutes, and so they had to practice discerning which problems they could do quickly and which ones would take longer.

In addition, I have a variety of teaching experiences outside of the typical undergraduate setting, such as working with in-service middle level teachers on innovative ideas to incorporate discrete math concepts in their middle school classrooms. I have also worked with IMMERSE, a five-week summer program for students entering graduate programs in mathematics that teaches advanced mathematics and focuses on learning to read research papers. Another program that I have been involved in is All Girls/All Math, a week long summer camp in mathematics for bright high school girls. I am particularly interested in outreach programs to the local community, and have been a guest lecturer at a local math and science

focus high school.

In the interest of engaging students as much as possible, as well as fostering cooperation in the classroom, I incorporate group work into almost every class period. I make it a point to constantly circulate through the classroom to ensure that students are on task and have sufficient opportunity to ask questions. I find that students are generally more comfortable expressing confusion and asking for clarification from each other and from me as I walk among the small groups than they are raising the same questions in front of all of their classmates while I am at the board. I am also encouraged by students' interaction as they work to explain concepts to each other; as the artist and teacher Julia Cameron said, "Water seeks its own level and water rises collectively."

Although I believe that technology is an important tool in the classroom for demonstrating various mathematical notions and letting students get their hands dirty and really explore concepts, I find that too many incoming students use technology as a crutch. I work diligently to empower students and give them confidence in their mathematical abilities independent of their calculators, even re-teaching prerequisite concepts occasionally in order to free them of their technological dependencies. My own experience of learning mathematics testifies to how beneficial of an asset technology can be in elucidating new or abstract concepts, but I have also seen honors students in a precalculus class take out their calculators in order to add two numbers together, and so I strive to balance the use of technology with developing competency and self-sufficiency.

No matter how high I set my expectations, I am pleased to find my students working hard to surpass them: in a precalculus class I taught, two-thirds of the class voted to take optional weekly quizzes outside of class time. One of my Trigonometry students commented that I am "very enthusiastic and challenging" and another said that my course was "enjoyable yet challenging at the same time," which affirms to me that students appreciate really being challenged and held to high standards, even if some of them do not acknowledge it during the challenge. My greatest pleasure in being a mathematics instructor comes from helping students understand math and gain confidence in themselves during the process, and my greatest encouragement is feedback like the following that I received from a non-technical major: "I think [she] is a great instructor. She was willing to help and answer questions at any time. (She was available often!) I felt I understood the material and her teaching was effective."

These experiences have given me an exciting glimpse into the many opportunities available for teaching mathematics, and I am eager to continue exploring these opportunities. My work with middle level teachers has piqued my interest in math education because I have seen how a higher-level understanding of mathematics can positively impact the teaching of much simpler notions. I would also like to explore the possibility of creating and participating in programs that foster communication and collaboration between the college and the community, such as the Math Day that UNL hosts, which brings in hundreds of students from all over Nebraska to participate in contests and stimulate mathematical interest. Based on conversations with one of my close friends who teaches at a local high school, I am also interested in developing a partnership between the college and local high schools that would work with teachers and allow them to offer advanced classes in which their students could earn college credit, if no such programs already exists. Finally, my research contains many pieces that would be accessible to an undergraduate or even high school student with a basic graph theory primer, and I am excited about pursuing these research ventures.